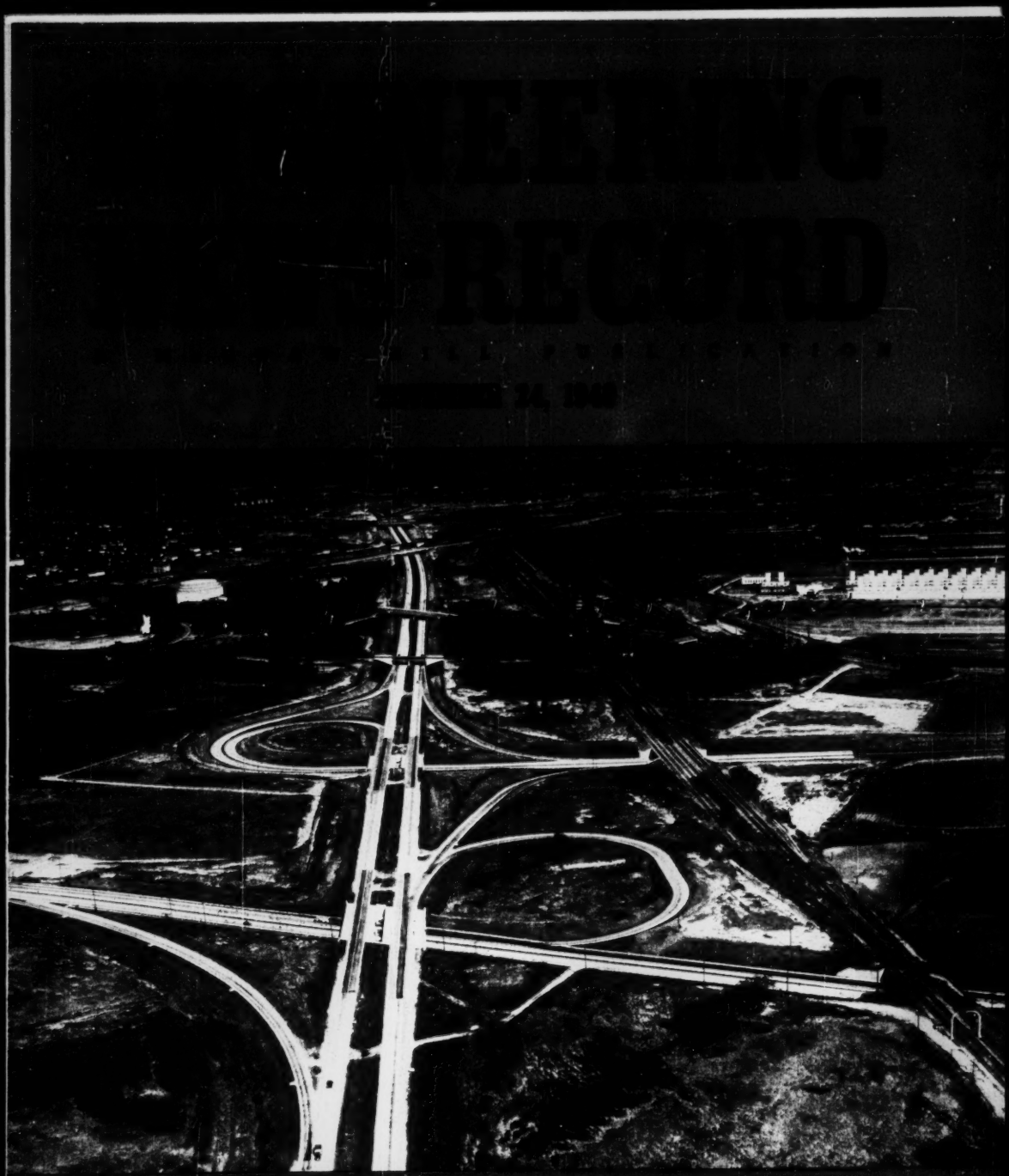

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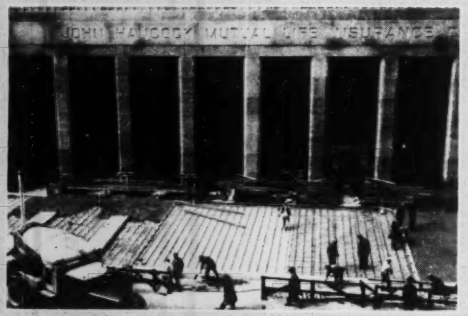

. . . snow melting
. . . radiant heating
. . . 8 other plumbing
and heating services

ALL

BYERS WROUGHT IRON PIPE

In addition to its architectural distinction, this new building is notable for its snow melting system, which is thought to be the largest ever installed.

The sidewalks on three sides of the structure, an area 20 feet x 720 feet, have grids of Byers Wrought Iron pipe embedded in the concrete, to keep the walkways free of snow, slush and ice. A similar snow melting system is installed in the truck loading space, and radiant heating is used in the main lobby and the theatre lobby. Both of these systems utilize Byers Wrought Iron pipe, and the material is also applied in a number of building services: drainage, waste, vent, fire and soap lines; downspouts; concealed steam supply lines; and all steam return lines.

The wisdom and soundness of these specifications are abundantly confirmed by engineering records. Surveys of the life of wrought iron in identical or parallel services have shown many instances of wrought iron pipe still serving after periods of 30—40 and even 50 years, in areas where ordinary materials required repair or replacement in a fraction of that time.

It is natural that wrought iron should offer something unusual in service properties, for its composition and structure are unique. Tiny fibers of glass-like silicate slag, threaded through the body of high-purity iron, halt and disperse corrosive attack. This discourages the pitting and rapid penetration that causes vulnerable materials to fail prematurely. The fibers also help to anchor the initial protective scale, which shields the underlying metal.

The best guide in applying wrought iron is not a list of current uses, but a knowledge of its manufacture and characteristics. The story is condensed in our booklet, THE A B C's of WROUGHT IRON. We will be glad to send you a copy on request.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, Salt Lake City, San Francisco. Export Division: New York, N. Y.

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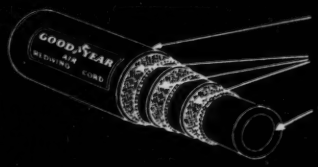
GTR - Specified
REDWING CORD AIR HOSE



A — Cushion cover protects against wear, cuts, abrasion.

B — Multiple-ply, high-tenacity rayon cord for strength and flexibility.

C — Seamless synthetic tube resists lubricants, doesn't flake or swell.

NEW REDWING CORD AIR HOSE COVER

bounces away cuts, abrasion, gouges, digs

Now you can buy air hose with a cover that's tire-tread tough — yet cushiony enough to resist heavy impacts without cutting or gouging. It's Goodyear REDWING CORD Air Hose. Hard knocks, digs, abrasion and wear literally "bounce" off the brilliant-red cover stock used in making this radically different air hose. It's a rugged, springy protection that gives you longer, better air hose service in mining, quarry and construction use.

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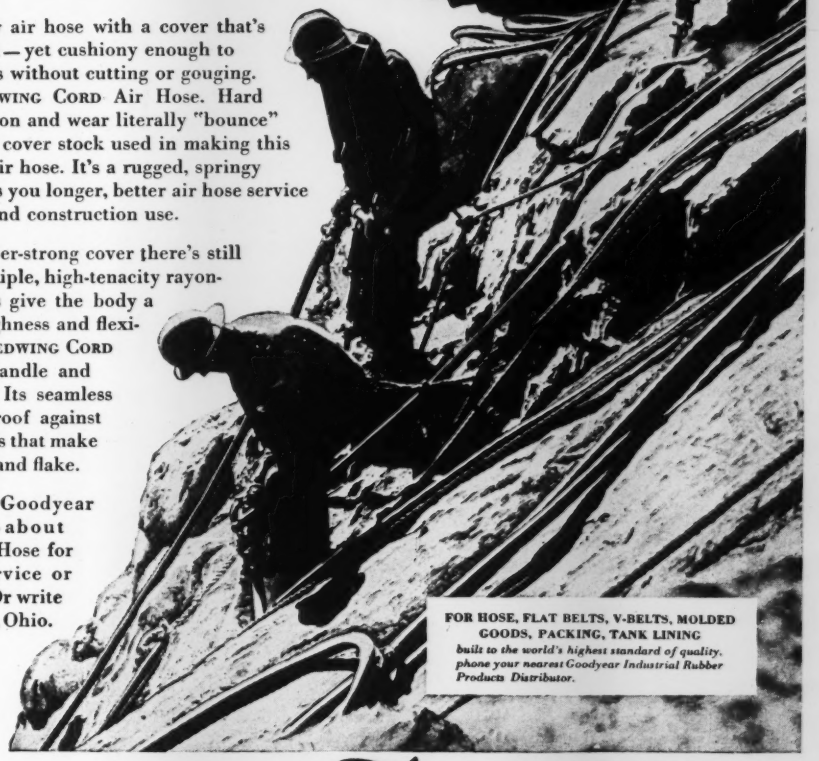
Ask the G. T. M. — Goodyear Technical Man — about REDWING CORD Air Hose for pneumatic tool service or heavy-duty air use. Or write Goodyear, Akron 16, Ohio.



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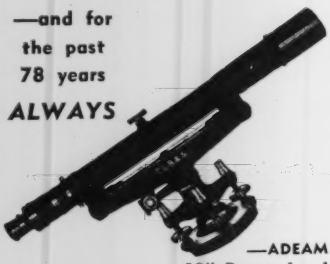

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ENGINEERING NEWS-RECORD

VOLUME 143 NOVEMBER 24, 1949 NO. 21

WALDO G. BOWMAN
Editor

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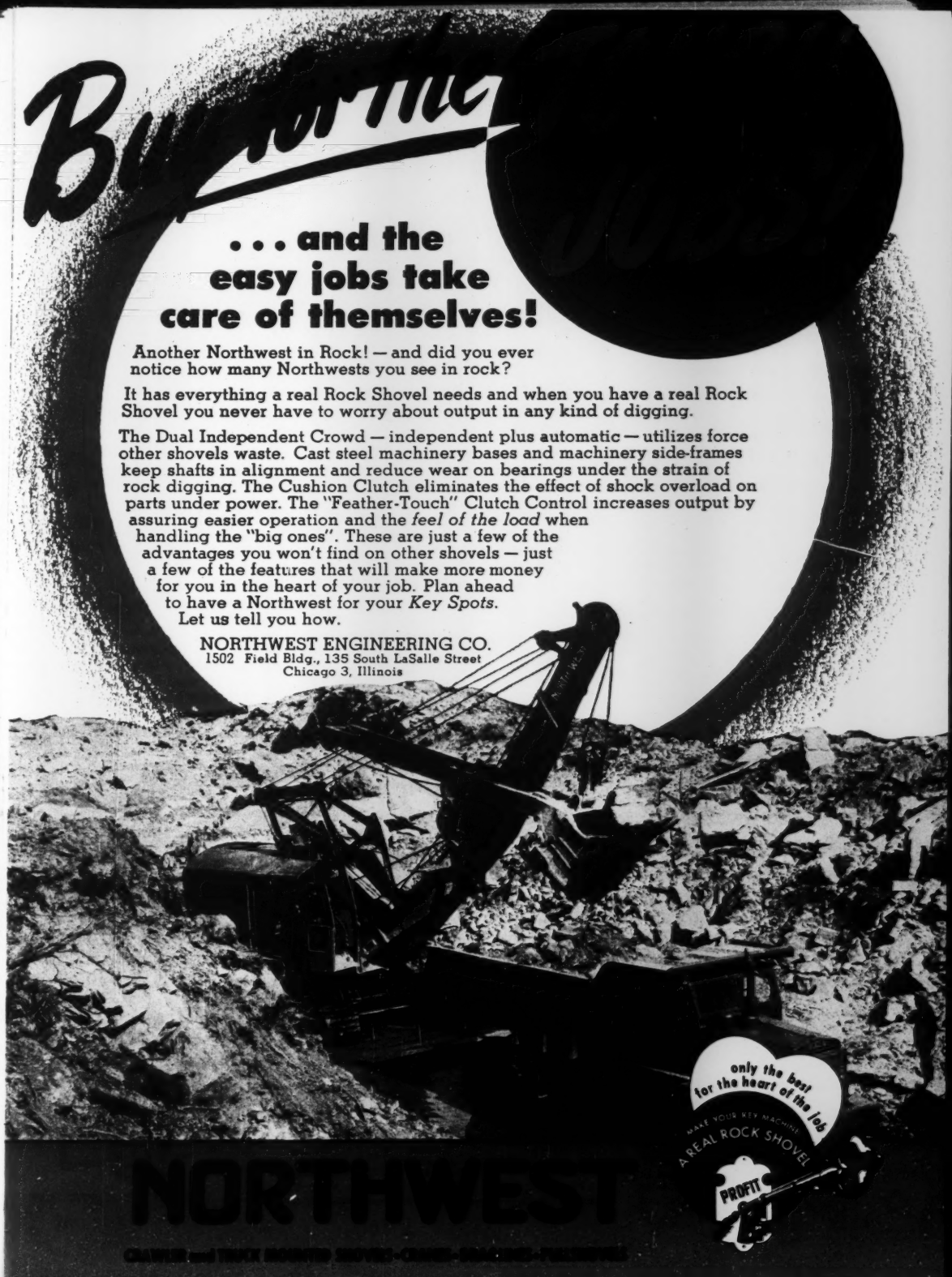
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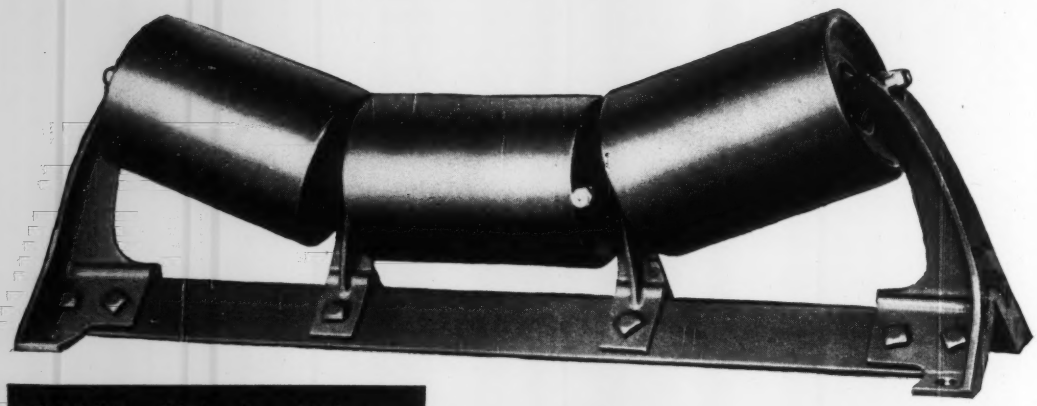

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Costs must be cut. No question about that . . . and no question about the economy of Jeffrey Belt Conveyors when small or large quantities of material must be handled. We can furnish them by the rod, or mile, just as the job requires. We know how to provide for reliability under tough conditions, handling of peak loads, low investment, high salvage and other things which are problems peculiar to engineering.

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Used for both troughing and flat belt conveyors. Of the self-aligning, two-pulley type. Also standard return rolls pivotly mounted in ball bearings on supporting cross member. Write for full details about Jeffrey Idlers for either troughing or flat belt service.

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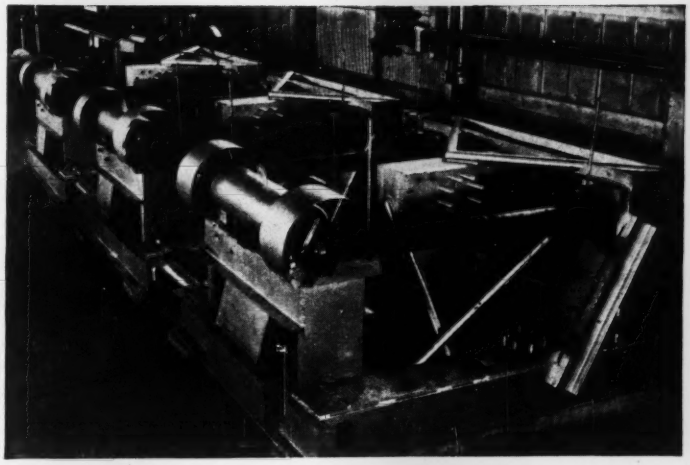


Strength through Design in Tube-Turn welding flanges

Taking the measure of piping fatigue

PIPE lines are *live, dynamic* members of a piping system. They *breathe* with changes in temperature and pressure. And the danger of fatigue failure from pressure shock, thermal shock, and cyclic conditions is ever-present.

More precise information was needed on this subject. So, Tube Turns research engineers set out to get the answers. For the purpose, they designed and built a unique cyclic testing machine to handle full-size piping assemblies under a wide range of temperature, pressure, and corrosive conditions. And on this torture rack they subjected flanged assemblies to reverse bending tests carried on to ultimate failure. Information revealed forms the basis of new designs for greater strength in Tube-Turn welding flanges.

Other piping assemblies, too—welding elbows, mitre bends, manufactured and fabricated tees, pipe bends—have been subjected to punishment more severe than any they would probably face in normal service.

And this perpetual search for greater strength through better design has paid off in the form of realistic, non-theoretical facts providing a sound basis for Tube Turns' manufacturing policies—facts important to anyone interested in getting his money's worth in long life from piping installations.

Tube Turns' research and development organization, finest in the welding fittings industry, is constantly striving for the improvement of present products, the development of new ones. Notable among their recent achievements have been the design of a new type welding tee and the development of aluminum welding flanges.

Ask to be put on the mailing list for Tube Turns' technical periodical, *Piping Engineering*. Paper 6.01, for instance, deals extensively with standard steel flanges. Others give you research findings and additional working information pertaining to piping not generally available in convenient form.

TUBE-TURN
tt
WELDING FITTINGS AND FLANGES

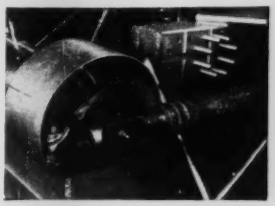
TUBE TURNS, INC.

230 East Broadway, Dept. L, Louisville 1, Kentucky

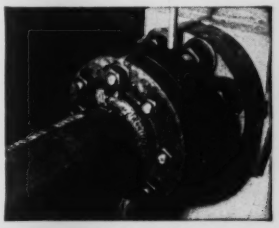
District Offices at New York, Philadelphia, Pittsburgh, Chicago, Houston, Tulsa, San Francisco, Los Angeles

TYPICAL FLANGE ASSEMBLY TESTS

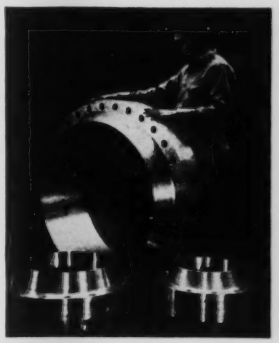
Assemblies were of 4-inch nominal size with 300 pound forged steel flanges and standard weight pipe.



Eccentric crank arm produces up-and-down movement which creates a cyclic bending moment on flange or fitting at opposite end of assembly.



Water spurts from crack in test specimen. Almost invariably, failure occurred in the pipe adjacent to the flange.



Aluminum welding flanges . . . another Tube Turns first! Available in a wide range of types and sizes.

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That's the case when a city's fire hydrants are always ready and fit for service. Nashville uses Mathews Modernized Hydrants and they mean *safety plus.*

Even when a Mathews is knocked down by a truck, the unfit-for-service period lasts only so long as it takes to bring up a spare barrel and install it *without excavating.* The removable barrel contains all working parts. The stuffing box plate, cast integral with the head, prevents water from reaching the operating thread to cause deterioration from rust or sand.

Send for full description of this soundly designed hydrant and see for yourself why your community cannot afford to be without its *safety plus* features.

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"One of America's Safest Cities"
THE MATHEWS FIREMEN SAY

MATHEWS HYDRANTS

Made by R. D. WOOD COMPANY

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4. Heat & oil-resistant tube.

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When you need EXTRA safe hose that prevents "burst" explosions, withstands working pressure to 200 lbs. and gives you more for your money, investigate Concord #10 with new abuse-resistant cover!

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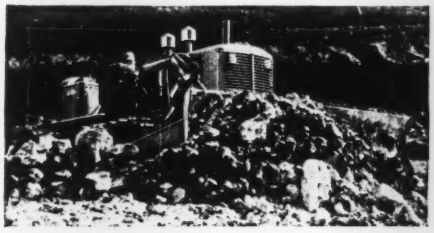
GM Diesel-powered Koehring 605 dragline with 1½ yd. bucket, loads shale in Euclid bottom dump. The GM Diesel-powered Euclids haul 17 yard loads up a 15% grade climbing out of the cut.



Allis-Chalmers HD-19 pulling a 12-ton "rooter" scrapes heavy shale off rock vein in final stage of stripping at National City, Michigan. A General Motors 6-71 Diesel powers the HD-19.

GM Diesel-powered Euclid loader, pulled by Allis-Chalmers HD-19 tractor, teams up with 7 GM Diesel-powered Euclid bottom dumps to move as much as 150,000 yards of earth a month.

100% GM DIESEL POWER—"100% PLEASED"

Says the Contractor

Stripping a 55-foot overburden of Michigan's hard clay, heavy soil and shale to bare gypsum deposits takes plenty of rugged, reliable power. That's why A. S. Leffler, contractor, standardizes on General Motors Diesels. Leffler operates 16 of them.

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Remember all GM Series 71 Diesels have the same bore and stroke. Thus most wearing parts are interchangeable between engines of different sizes. Result: lower parts inventory, less time out for repairs, a big reduction in maintenance costs.

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Also, Naylor's exclusive Wedge-Lock Coupling speeds installation and allows joints to be made up with only one side of the pipe in the open.

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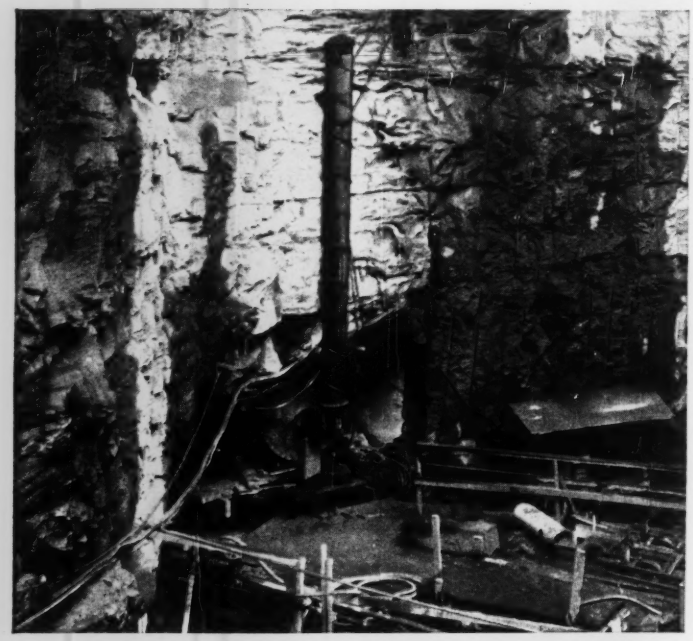
Sizes from 4" to 30" in diameter—thicknesses from 14 to 8 gauge. All types of fittings, connections and fabrications.



Naylor Pipe

NAYLOR PIPE COMPANY

1248 East 92nd Street, Chicago 19, Illinois

New York Office: 350 Madison Avenue, New York 17, N. Y.

NEWS BRIEFS

Maryland Wants a Code—First meeting of a committee assigned to draw up a state building code for Maryland has been held at Baltimore. John B. Funk, state chief engineer, heads the committee, which will work with the Department of Public Improvements. All fields concerned with the building industry are represented on the committee, whose report is due before the legislature in 1951.

That's a Lot of Houses—Chicago's Housing Authority has proposed to the Mayor the purchase of seven sites on which 9,900 dwelling units of public housing could be built for approximately $100 million. The proposal represents the city's first step toward participating in the funds available under the 1949 Housing Act.

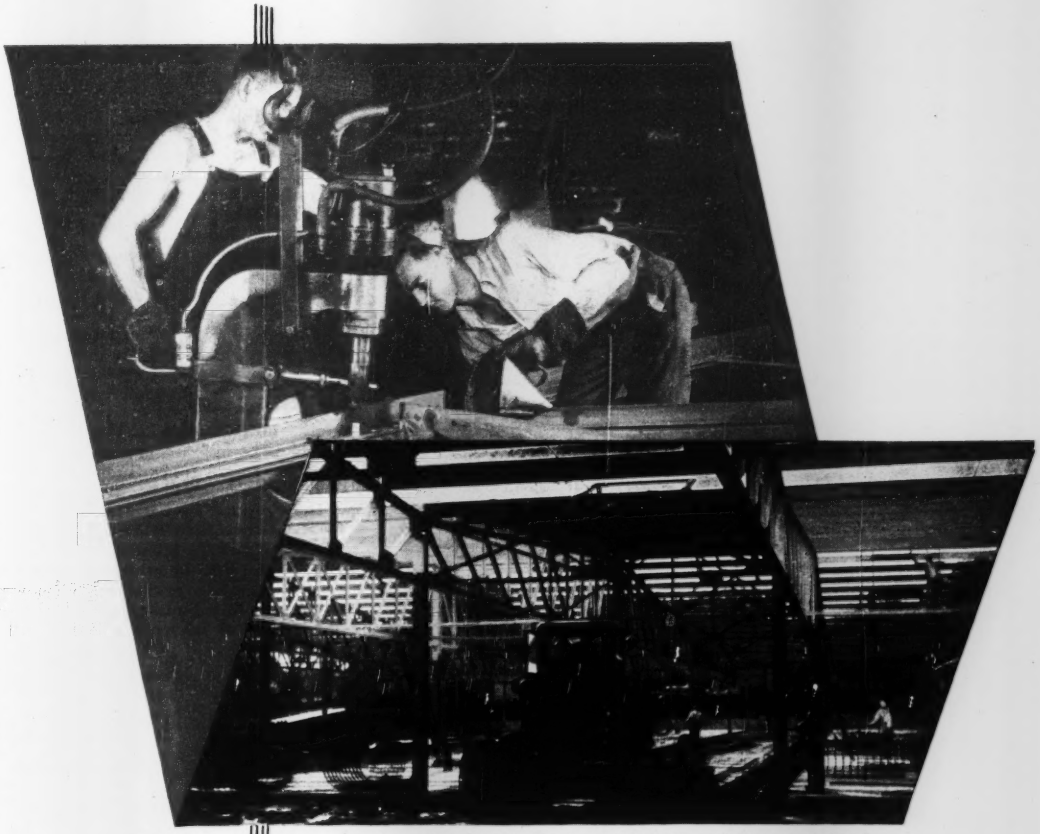
Ought to Get Action—A State Board of Health report outlining three defects which threaten public health in Columbus, Ind., may expedite a switch in that city's water supply from a river source to wells. The city has been studying the switch for several months. The report noted that recommendations for improvement had been made 10 years ago, without action.

Hope it Works—Pennsylvania is preparing plans to spend $200,000 for a device it hopes will extinguish a mine fire which has been burning 90 ft. underground in its lower anthracite field for three years. There's no guarantee of success. The idea is to build—by pouring concrete down a five-in., 200-ft. shaft—a dam plug to prevent water from flowing out of one underground basin into another. If it works, new water running into the first basin should rise high enough to extinguish the blaze.

To Cool the Hot Air?—Washington, D. C., will have to spend $6,000,000 yearly for the next decade on its water supply system, according to Lt. Col. C. H. Whitesell, assistant engineering commissioner. Construction must be speeded to catch up with increased demand, Whitesell says.

Canada Breaks Records Too—New home completions in Canada during the first seven months of 1949 broke all records. But during this period, fewer homes were started than during a comparable period in 1948, and, for the first time in years, the number of new families formed dropped. Com-

(*Continued on page 14*)



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TO anyone considering the choice of modern weight control, the name Toledo Scale needs no introduction. Their reputation has been established along lines of accuracy and dependability of product and they seek the same reputation in the products and services which they purchase. That's why *"Automatic" Sprinkler* fire protection was specified at the time construction of their modern Toledo, Ohio, facilities was initiated.

While the technical advantages of *"Automatic" Sprinkler* fire safety are of prime consideration, the financial aspects involved in this particular installation cannot be denied. The unsprinklered insurance rate for this seven million dollar valuated property would exceed $198,000.00 annually. The present *"Automatic" Sprinklered* rates are less than $6,000.00 annually, and fire protection in this case was paid for out of savings, in less than one year.

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OFFICES IN PRINCIPAL CITIES OF NORTH AND SOUTH AMERICA

(*Continued from page 12*)

pletions through July, 1949, were 46,126 houses, 26 percent above the comparable period of 1948.

Maryland Roads Coming Up—Maryland is out to bring its road system up to the "model system" stature it once held, according to Roads Commission Chairman Robert Reindollar. He outlined a three-point plan for achieving this goal: Rehabilitation of present roads that are worth saving; replacing portions of existing roads which are unacceptable; and increasing the ratio of arterial access routes to the new Baltimore-Washington expressway and the New York road. The three-point program is part of the $200 million modernization now underway.

Jobs in Indianapolis—With 1949 building permits totalling about $40,000,000 already issued, Indianapolis is enjoying a building boom almost 25 percent greater than it had last year—when it considered it had a big year. There are two big hospital expansions, one by the VA, the other at the Indiana University Medical Center, three bridges, industrial plants and $14,000,000 worth of residential housing.

Down on the Suwanee River—For the third time, an unfavorable report has been made on the proposed Suwanee River navigation, flood control and power project, this time by the U. S. Board of Engineers. Previously, the district and division engineer officers in Jacksonville, Fla., and Atlanta, Ga., had rejected the proposals which had been made by local Florida interests in the Suwanee River valley. The board declared that the project is not warranted at this time, in whole or in part. The proposal was for power dams and flood control reservoirs at Belle, Ga., and Ellaville, Fla.

Gas Tax to Pay Road Debt—Revenue Commissioner Victor Salazar of New Mexico reported a rate of gasoline tax collections for the month of September which would, if continued, enable the state to pay off its $20,000,000 highway debt in five years. About $340,000 went to that account in September. Gasoline taxes were hiked to 7 cents a gallon this year to pay off highway debentures.

Mass. Flood Control—Wm. F. Callahan, Massachusetts State Public Works Commissioner, is advocating a continuous, state-sponsored flood control program. Under his plan communities would also participate. As constituted now, flood control under the jurisdiction of his department is limited to work on tidal streams.

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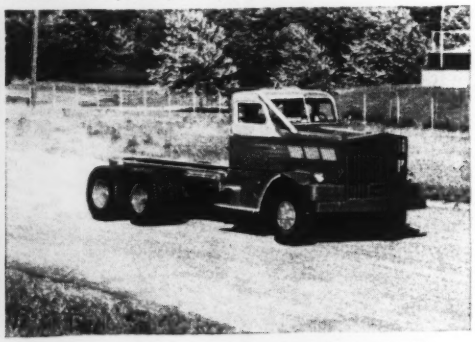

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THE CONSTRUCTION WEEK

FED UP?—Best Washington guess on Secretary Krug's sudden resignation (ENR Nov. 17, p. 23) is that Krug finally got fed up with presiding over a department largely staffed with bureaucrats openly out to get the boss—and just quit. Otherwise, the resignation doesn't make too much sense. The story has been around for some time that because Krug didn't do much toward Truman's election, he was on his way out. But he had apparently outlived that onus—he was even the President's star performer at a Democratic regional session at San Francisco, and was scheduled for the same act in a New England meeting first scheduled for Nov. 20-21 and then postponed (by the death of the chairman—not Krug's resignation) until January.

STILL JUST TALK—Although ten months have elapsed since Mr. Truman made his famous "Point Four" declaration, the program is still just a slogan. There are such unrelated programs afoot as Overseas Consultants' work in Iran and the World Bank's mission in Colombia—but it's still a long way from any organized plan to back up the President's words. Assistant Secretary of State Willard Thorp is finding more and more snags, the deeper he gets into plans to implement Point Four: You can't attract private capital to undeveloped areas until you have roads, railroads, etc.—and these take government capital, which isn't available in most of the undeveloped spots; technical assistance (know-how exports) is proving of limited value, without capital for plants to demonstrate better production techniques.

PROGRESS REPORT—The Missouri Basin Inter agency Committee surveyed progress so far, then issued a summary report. Said the committee: So far, Army engineers and Bureau of Reclamation have projects valued at $1.6 billion under way—about 40 percent of the total program.

ADD LUSTRON—Further note on suddenly-expanding opportunities for the Lustron Co., makers of enameled steel prefabricated homes: American Community Builders, Inc., of Chicago, will purchase 2,000 Lustron homes to add to its huge suburban development. The Reconstruction Finance Corporation (which has invested $37,500,000 in Lustron) at the same time approved a $6,390,000 loan to American Community Builders.

BONUS DUE?—Bonus clauses for early completion of a job aren't unusual—but the bonus toward which William J. Howard Inc., of Chicago, is working is most unusual. The total might come to $200,000. Howard is general contractor on the new $10,000,000 bridge across the Mississippi at East St. Louis. At present, he's nine months ahead of schedule. And the bonus clause calls for $1,100 per day for each day under the deadline of June 1, 1951.

PRIVATE POWER WINS ONE—Ending a lengthy dispute between the Bureau of Reclamation and local interests, the Federal Power Commission has authorized a 50-year license to Pacific Gas and Electric Co. for hydro developments along Kings River tributaries. PGE can now develop Helms Creek, the North Fork, and the main channel of Kings River. Reclamation had opposed the private development on the ground that such development would interfere with Reclamation's plans for development of the Central Valley—including (some day) the Kings River.

APWA TO N. Y. IN '50—Spirited bidding for the 1950 convention of the American Public Works Association resulted in the board of directors selecting New York City for the Oct. 15-18 session. Until almost the last moment, the contest appeared to be between New Orleans and Atlantic City. In 1951, the association will go to Detroit. During 1950, also, the organization will hold a regional meeting—probably in San Francisco, in recognition of its growing membership in western cities.

INDUSTRIAL DISPERSION—It's now considered certain that a forthcoming government plan to lessen industry vulnerability to bombing attack will call for dispersal of basic plants as far as feasible. This will be recommended, in spite of recent half-assurances to businessmen that nothing drastic in this line is contemplated at the moment. The planners, at least, are facing the problem: All the industrial eggs in just a few baskets are very likely to get broken. Obviously it would be too expensive and take too long to move many existing plants. But new ones can be put in less exposed spots.

PURCHASING NOTE—European Cooperation Administration statisticians totalled up last week, and announced that, so far, almost a billion dollars has been set aside for purchases of machinery, vehicles and transportation equipment, in the United States.

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HI-BOND has *HIGHER* deformations than required by ASTM Specification A305

THE new Specification A305 of the American Society for Testing Materials gives architects and engineers a standard by which they are guaranteed a deformed reinforcing bar that will carry its share of the load in the structure. By specifying that reinforcing bars meet ASTM A305, they are assured of receiving bars with deformations having minimum heights, maximum spacing, and other characteristics which promote improved bond.

Inland HI-BOND bars not only meet but *beat* ASTM A305, for they have higher deformations and more closely spaced ribs than the specification requires. You get this plus value at no extra cost in *every* HI-BOND bar . . . for mill practice requires that test samples of HI-BOND be taken from production frequently and regularly. If, in this testing, it is found that the height of HI-BOND's reversed double-helical ribs has fallen below certain standards—standards well above the requirements of ASTM A305—the worn rolls are immediately replaced with new, deeply grooved rolls.

You obtain better interaction between concrete and steel when you specify ASTM A305 and you get plus value if you specify HI-BOND bars. By providing superior bonding strength—by anchoring *firmly* in the concrete—Inland HI-BOND bars prevent slipping, eliminate unsightly wide cracks, and permit more efficient and economical structures. Write for complete information.

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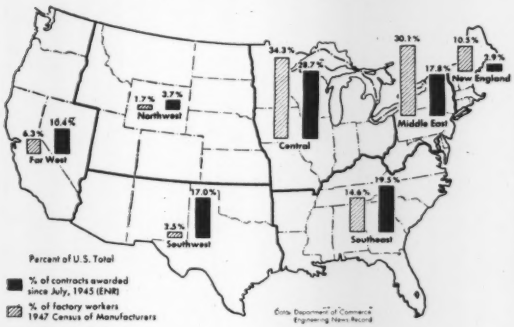
CONSTRUCTION TRENDS

THE CHANGING PATTERN OF INDUSTRIAL CONSTRUCTION

POSTWAR INDUSTRIAL BUILDING



The migration of industry westward and southward goes steadily on. Given impetus by the war, the trend toward the newer regions continues to stand out in studies of the market for industrial construction.

As the chart above shows, the older regions that now have the great bulk of the nation's industrial plants are not growing as rapidly as are the newer regions. New England, with more than 10% of the nation's industrial workers, has less than 3% of the new industrial construction. The Southwest, dominated by Texas, has only 2.5% of the workers, but 17% of new building.

These figures, compiled from ENGINEERING NEWS-RECORD'S reports on contract awards in the last four years, do not include commercial warehouses, service buildings, or remodeling work on existing units. They count only plants costing $100,000 or more. The figures were compiled by the Territorial Information Department of a group of utilities in the Chicago area.

Marked as the trend to the west and south is, it has—as yet—shifted the country's industrial center only slightly. The Middle East and Central States still have almost two-thirds of the country's production workers. And, in spite of the rapid growth of the new regions, the older regions still have a major share of all industrial construction. For example, Texas and California ranked first and second among the states getting new plants. But Ohio, Pennsylvania, and Illinois were close behind them.

Standing out in the location study is the fact that the great bulk of new plants go into established industrial areas.

The great manufacturing cities draw new plants into their neighborhoods. Of the 2,897 plants studied, some 1,510 went into the country's major industrial areas. The Houston area ranked first in the value of contracts awarded—$118.5 million for 90 plants. Chicago had the second largest dollar volume—$112.7 million for 228 plants. New York, including Newark and Jersey City, Pittsburgh, Detroit, Cleveland, Philadelphia-Camden, Los Angeles, San Francisco-Oakland, and St. Louis followed in that order.

However, the fact that the majority of new plants are being placed near the major industrial centers does not mean that small communities are being overlooked.

Even of the 1,510 plants located in or near the big centers, more than one-third are located in suburbs or in nearby unincorporated areas. And 47%—more than 1300—of the grand total of 2,897 plants went into communities with populations of less than 50,000.

The study provides another important key to the construction market—which industries build most.

By dollar volume of contracts awarded, the ten leading industries were: Petroleum and coal, chemicals, iron and steel, food, paper, textiles, automobiles and equipment, electrical machinery, printing and publishing, and the stone, clay, and glass products industry. Dollar totals ranged from $386 million in petroleum and coal to $72 million for stone, clay, and glass.

The Territorial Information Department's study also showed how the industries varied in the state-by-state pattern of location of their new plants. The chemical industry, for example, spent almost one-third of its construction funds in the state of Texas alone. Of its total of $384 million in contract awards, it spent $111 million in Texas, $44 million in Ohio, $28 million in Chicago, and the balance among other states.

By states, the highlights of the breakdown were these: Texas led in chemicals and petroleum, California led in furniture and Ohio had the greatest concentration in rubber. Pennsylvania dominated in stone, clay, and glass, in iron and steel, and in transportation equipment. Illinois held top place in food, printing and publishing, and machinery, while Michigan, of course, had the largest share of the auto industry's construction program. Alabama scored first in lumber, paper, and non-ferrous metals and South Carolina led the field in textiles. New York with its widely-diversified industry had the largest volume of contract awards in the apparel, electrical machinery, and miscellaneous industries.

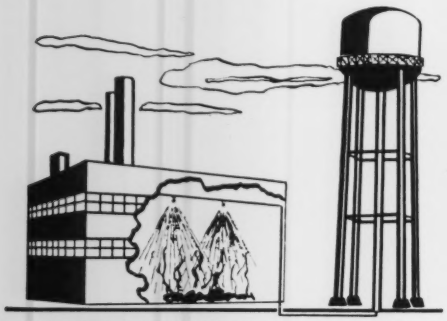
"The new tank reduced insurance premiums 30 per cent...

. . . and will pay for itself out of insurance premiums in from 10 to 12 years."

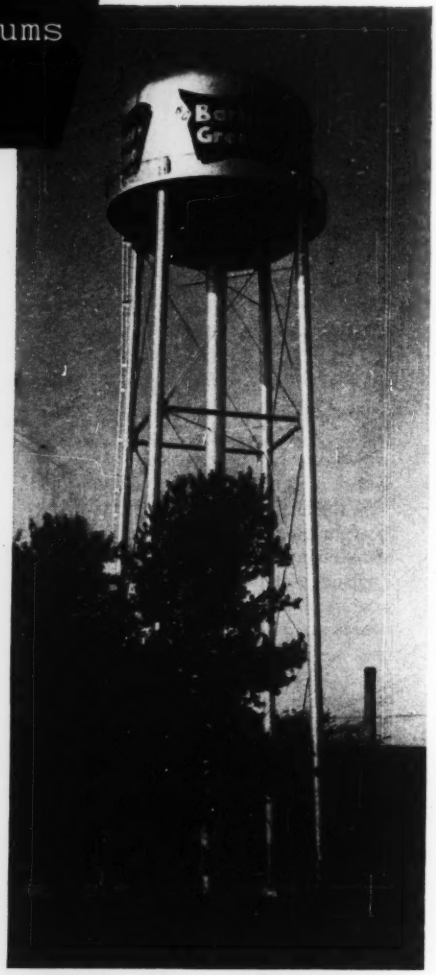
This quotation is taken from a letter from the Barber-Greene Company of Aurora, Illinois. It is dramatic evidence that a Horton elevated tank provides economic savings as well as peace-of-mind when you install it for fire protection.

Why does an automatic sprinkler system with a Horton elevated tank reduce insurance costs like this and why do insurance companies regard this type of fire protection very favorably? Because day or night—in any emergency—this tank is your assurance that water is available for plant protection. This precaution may mean to you the difference between a few hours interruption and a costly shut-down.

Horton ellipsoidal-bottom elevated steel tanks are built in capacities from 15,000 to 500,000 gallons. For fast action on reducing your fire insurance premiums with elevated water tanks, write the nearest office listed below.



HERE'S HOW IT WORKS—Water is stored above your plant in the elevated tank. The instant a fire starts, water—under gravity pressure—streams from the first sprinkler head that opens. The fire is quenched before it has a chance to gain headway.



Above: This Horton ellipsoidal-bottom tank holds 100,000 gals. of water at the Barber-Greene Company's plant at Aurora, Illinois. If the pressure from the city mains is not adequate, it provides a secondary supply for emergency fire protection.

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Los Angeles, 14 . . . . . 1511 General Petroleum Building
New York, 6 . . . . . 3311—165 Broadway Building
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Local Support for Road Plans

AMONG THE RESOLUTIONS adopted at the annual meeting of the American Association of State Highway Officials was one urging members to encourage the formation of local good-roads associations. This marks an interesting reversion to a form of local support for road work that did much to get road users out of the mud a few decades ago—but which had largely disappeared until quite recently.

A little study of the road finance situation in many of our states will reveal the reason for this revival of good-roads associations. Every state needs more money to bring its highways up to the demands of today, but in most if not all of them the only way to get more money is through higher taxes of some sort. However, opponents of tax increase—chiefly the real estate people and the oil companies—are well organized and have most of the state legislatures scared even to discuss higher taxes. Those who most need the better roads have no such vociferous spokesmen. Consequently, except in a few notable instances, new taxes or bond issues have not been forthcoming.

So, good-roads associations again are being organized. There are 18 at present, an outstanding example being the one in New York, which is actively at work in the grassroot regions. It is headed by Charles H. Sells, former state superintendent of public works. The movement warrants the support of the construction industry.

Produce, Meter and Sell Water

CONDITIONED AS WE ARE to regard water as a commodity too precious for prodigal use, Farley Gannett's article "Let's Sell Water" (p. 39) may come as something of a shock. But don't pass it off as Alice-in-Wonderland philosophy or "tongue-in-cheek" writing. It contains many sound suggestions, although some may be unpalatable to many waterworks officials.

Certainly there can be no quarrel with the statement that more water is required throughout the land. Almost daily the newspapers carry ominous stories of water shortages, appeals by city fathers to restrict consumption, or application of legal measures to restrict water use for all but domestic purposes. That the water supply situation throughout the nation is serious cannot be denied. But who will stand up and say that the needs of a rapidly growing population and expanding industries cannot be satisfied, that new supplies cannot be developed because the cost is too great, and that restriction of consumption is the only solution? Unfortunately, a stigma of defeatism in this respect must be widely accepted.

Measurement of water use is another field of failure. It is sobering to consider just how much of the water-shortage problem in New York, Philadelphia and Chicago—all faced with tremendous, increasing demands—could be solved by a 100 percent installation of meters. Surely this measure would stimulate individual-household water economies far more effectively than appeals through the press. Metering offers a new source of water supply that has hardly been tapped.

Then there is the recommendation that water departments should get out and sell water; that they should adopt sliding scales with maximums for peak-consumption users. This argument will stir up more than its just share of criticism and horror. But what are some of the facts? Take air conditioning for example. Would not very high rates for peak-consumption use tend to encourage water saving and development of devices and equipment for cooling and re-use? This reasoning applies equally well to other heavy summer-time consumers.

Another question to be decided by waterworks officials is the responsibility that they must accept if economic development is stymied by lack of water. This is a dollar-and-cents responsibility to the population as a whole. Only under the direst of circumstances should lack of water be the cause of driving industry away.

The logic of Mr. Gannett's argument cannot be denied: The waterworks industry can meet its ever-growing, increasingly urgent problems if it acts to break its legal bindings and boldly follows business-like, aggressive managerial policies—and if it goes all out to sell water from any region or community.

Pollution Abatement Pays Off

STREAM POLLUTION ABATEMENT costs money but the results can be worthwhile. Down in eastern Pennsylvania, a $35,000,000 desilting program for the notorious Schuylkill River has been underway for two years, and more than a 99 percent reduction in solids has been accomplished in this time, largely due to cessation of colliery discharges (see p. 27). The anticipated end result will not only be a clean stream but also about $15,000,000 worth of marketable anthracite fines. Credit for this outstanding program goes to the Water and Power Resources Board of Pennsylvania's Department of Forests and Waters and to a joint venture of contractors and engineers who carried out the design and construction phases.

Because silting of rivers is being recognized as an increasingly important element in the stream pollution picture, this work should stand as a model for similar abatement projects. It is another commendable example of contractor-engineer cooperation.

New York State Highway near West Point

THE BETTER a driver can define the road ahead, the less chance there is for highway accidents. Driving is safer, more comfortable. White Concrete Reflecting Curb, made with Atlas White Cement, clearly outlines the road's edge by day, marks it even more brightly at night.

Unlike smooth curb surfaces which, at night, diffuse light reflections *away* from the driver, the corrugated faces of Atlas White Reflecting Curb catch headlight rays and reflect them *back* to the driver to form a gleaming ribbon of guiding light. And especially on rainy, foggy nights—when good visibility is needed most—the reflecting surfaces become more mirror-like.

Send for full details. Write Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Bldg., N.Y. 17, N.Y.

AT NO EXTRA COST

For curbs and other white concrete uses, all the advantages of air-entraining portland cement—increased plasticity; easy placement; higher resistance to effects of freezing-thawing weather and scaling action of de-icing salts; greater durability—now available. Ask about

ATLAS WHITE DURAPLASTIC* CEMENT

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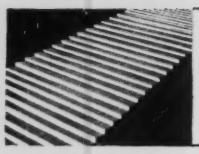

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ENGINEERING NEWS-RECORD

NOVEMBER 24, 1949 VOL. 143 NO. 21

Public housers enthusiastic but recognize obstacles

National Association of Housing Officials convention hears warnings on difficulties facing their program—Keyserling urges near doubling of homes production

Five months after the 1949 Housing Act became law, about 200 local housing authorities had a federal OK this week to start construction on 225,000 low-rent dwelling units. And they had federal loans (ENR Nov. 17, p. 29) to back up their efforts.

But in Boston, last week, where the National Association of Housing Officials convened, there were warnings as well as enthusiasm. Local politics, relocation of displaced families, racial segregation—these are the principal obstacles standing between public housing's latest charter—the 1949 Housing Act—and full realization by the construction industry of the $8- to $10-billion of work the six-year program can mean.

Would double housing

The enthusiam came primarily from Leon Keyserling, President Truman's top economic advisor. He upped the nation's housing goals nearly 100 percent for the next 10 years. To meet housing needs and sustain our national economy, Keyserling told the housing officials, we should average 1,750,000 dwelling units yearly over the decade, with yearly output rising from the present 1,000,000 to 2,000,000 in the tenth year. Of the total, public housing should account for 250,000 units, as compared with 135,000 units per year as provided by the 1949 Housing Act.

Keyserling gave further evidence of his expansionist theories by predicting production of goods and services at an average yearly rate of $300 billion over the next decade. Of this, investment in housing and necessary corollary facilities should account for $15 to $20 billions annually, he asserted.

Some of the problems

As for costs, home-state delegates could testify to the problems. Massachusetts' own 20,000-unit state program called for $10,000 apartments. They are costing $11,500.

Then, because of the general housing shortage, local authorities will have to start first projects on vacant land—usually on the edge of town. Into these units will move residents of sites which can be cleared for secondary and later projects; that looks like the pattern.

Racial segregation promises to be more of a problem in the North and West than in the South. In Dixie, much of the new housing will accommodate Negroes exclusively. In metropolitan areas in the North, trouble is expected—some of it doubtless essentially political—springing from anti-housers' willingness to use the race issue as a string to their bow.

There can be politics

Federal delays are in prospect, as well. Washington's attitude, at the moment, is to go slowly. (PHA screened 172 requests for loans to pay architects' and engineers' fees on new housing plans, OK'd only 107 of them which it was positive met all legal tests of the new housing act—ENR Nov. 17, p. 29.) The "men with a vision" about public housing don't want to sacrifice the potentialities of the new act's program for immediate results. But in less than a year, officials who must face the voters may want more tangible results from the act than a well-administered program. Meanwhile, local officials must decide which course will pay off.

Financing looks better

Financially, the outlook seems better. There's the provision that the government can subsidize operating expenses for not more than 40 years—a long term as bonds go today—to the extent of as much as $308 million yearly. And, to obtain help, local communities are required to exempt housing authorities from all real and personal property taxes. The government lends money to pay development costs pending local financing. It's hard to beat the security implicit in federal operating subsidy and federal and local tax exemption. Thus, local housing authority bonds ought to sell for 1.5 to 1.75 percent—and that's hard to beat, too. Moody's has said such bonds will rate Triple A.

Authorities probably will have to sell their bonds when they're about half finished with their building programs. Congress gave PHA just $1.5-billion in borrowing power against public housing loans. With costs where they are, this sum will be most effective as a revolving fund.

PHA requests $20 million

First public housing projects under the new Wagner-Ellender-Taft Law are on President Truman's desk awaiting his signature. The Public Housing Administration has sent over requests for $20 million to pay architects and engineers for planning 106 public authority projects.

Worst drought since '31 hits New York

Last week, New York City's Department of Water Supply—in the midst of its worst drought since 1931—tallied the score on what's in its reservoirs and what should be there.

Briefly, it found:

(1) Catskill and Croton systems are both down to 40 percent of capacity.

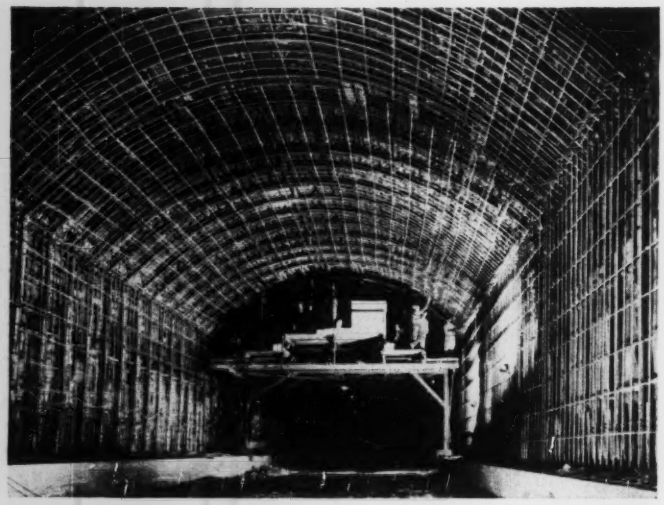
(2) Kensico—prior to 1948 an emergency supply never tapped—is less than half full.

(3) Three to four months without rain at present consumption would drain the system.

(4) Up to last week, rainfall on the city's watershed was 7½ in. below normal—and that which has fallen hasn't come at the best times.

Engineers are disappointed at results of their conservation appeal. It achieved a saving of only 40 mgd.—about 4 percent.

Odds are 5 to 1 against the system's being full next June, as it should be. That means next fall is apt to be much worse than at present, for the first Delaware River reservoir won't be stocked before late 1950. That system, to be done in 1955, will handle increases only until 1960.



PITTSBURGH TUNNEL PROGRESSES—Concrete reinforcing bars in a typical 50-ft., 4 in. section of the Squirrel Hill Tunnel, Pittsburgh, are being installed as the project, part of a high-speed highway into and through Pittsburgh, pushes toward completion. The project will require 3,000 tons of bars. The tunnel is being built by B. Perini & Sons, Inc., the general contractor.

Salt River Assn. to start concrete lining surveys

A federal allotment of $350,000 for examination and surveys of concrete lining of canals and laterals has enabled start of a $6,000,000 canal-lining program for the Salt River Valley Water Users Association, Arizona. The association had planned to start its program with the next federal fiscal year, July 1.

But the authorization for survey work has stepped up planning, and R. D. Scarles, association president, indicated the system's program of lining its main canals and putting many of the lateral canals either underground, or in lined ditches, would be well under way by that time.

The association has 140 mi. of main canals, 856 mi. of laterals and 381 mi. of waste ditches.

It costs $175 per mile to clean ditches and laterals, and lining would eliminate the necessity for that work almost entirely.

Recently the Water Users put into use a mechanical ditch cleaner, replacing hand laborers. Still in the experimental stage, the machine is expected to operate at 4 mph. Oil sprays have been successfully used to combat weeds.

An advantage of the new mechanical cleaner are hydraulic-controlled mould boards and spoiler blades which can either widen or narrow the ditch.

Slum clearance program officials named by HHFA

Four of the six branch chiefs in the new Division of Slum Clearance and Urban Redevelopment, established under the Housing Act of 1949 (ENR July 7, p. 49), have been appointed by Administrator Raymond M. Foley, Housing and Home Finance Agency.

G. Raymond Meade was named chief of cost review; Charles L. Farris, chief of field operations, and James E. McCormick, chief of the land branch. Carl L. Feiss will head the community planning and development branch. All will serve under Nathaniel S. Kuth, director of the Slum Clearance and Urban Redevelopment Division.

Feiss is director of the School of Architecture and Planning at the University of Denver. Meade is a graduate of the Illinois Institute of Technology. Formerly he was general industrial negotiator, Office of Industry Cooperation, Department of Commerce.

Farris is a graduate of Notre Dame, and served as director of field operations, Office of Production. McCormick is a graduate of the University of Southern California and of Stanford University. He formerly was director of the appraisals division, War Assets, division of the Surplus Property Administration.

Slum clearance activity should quicken with the appointments.

Cement company sued for alleged fruit damage

A $472,000 suit has been filed against the California Portland Cement Co., Colton, Calif., for alleged damage to an 8,700-tree orange grove.

The complaint states that the cement and plaster manufacturing plant—about a mile from the grove—has damaged each of the 8,700 trees to an extent of $30 over a period of three years by polluting the air. It is claimed that smoke, fumes, and cement and plaster dust have "stunted and weakened" the trees and made them "valueless."

An attorney for the orange grove owners says that research has shown that trees which have been washed clean of the cement dust produce normally, but that others have lost 90,000 boxes of oranges in decreased production over the three-year period.

This is the first suit of its kind in the area involving orchard damage due to aggregate manufacturing. The suit asks $251,000 for tree damage; $180,000 for loss of fruit production; $25,000 for increased costs and expenses in operating the grove; $5,000 for injury and deterioration of dwellings, and $1,000 for increased expenses for upkeep on motors and mechanical equipment.

The complainants filed no abatement action, asking damages only.

It is said that cement dust incrustates foilage and buds on fruit trees, decreasing their production. About 100 acres of orange trees are involved.

Complete Columbia River levee reconstruction

Reconstruction of a Columbia River levee near Portland, Ore., which burst during the June, 1948, flood, and a pumping plant in the affected district has been completed by Portland contractors at a cost to the government of $850,000. The contract for levee construction was held by General Construction Co., and for the new pumphouse and appurtenances by the Guy F. Atkinson Co.

The levee section is 800 ft. long and 33 ft. high, with a crown width of 18 ft. It is nearly twice the size of the levee which gave way under pressure of the 1948 flood.

The new pumping plant contains five pumps with a capacity of 80,000 gpm., 50 percent more than the former plant.

Height of the new levee will eliminate the necessity of sandbagging in case of recurrence of a flood of 1948 proportions, Army Engineers reported.

High registration fee is criticized sharply

A non-resident permit fee of $250 charged by the territory of Alaska was condemned in strong language at the annual meeting of the National Council of State Boards of Engineering Examiners, at Daytona Beach, Fla., Nov. 10-12. The committee on Registration by Endorsement, headed by D. B. Steinman, said: "One territory of the United States denies registration of non-residents, but will grant a temporary practice permit for a specific project for one year for a non-resident permit fee of $250. A fee of $250 per year, or fraction thereof, is a high tax on the right of professional practice. Obviously, the exaction of such a fee has little to do with determination of professional qualifications."

The report went on to say that in some states, the phrase "good standing" means little more than keeping up the payment of annual dues by out-of-state men registered there, with such consequences threatened as a written examination should the engineer wish to practice in that state again, after letting his license lapse. When registration was first proposed, the report says, the opponents were assured that it would not be used as a barrier to restrict interstate practice.

A number of states, the committee said, have absurd and unfair requirements relating to previous years of practice by applicants for registration by endorsement.

Registrations increase

T. Keith Legare, executive secretary of the council, reported that as of June, 1949, the number of registered engineers was 153,277. Allowing for duplications, Mr. Legare estimates the total at about 150,000. The number of "engineers-in-training" now registered by the 19 states permitting young engineers to take the written part of their license examination upon graduation is up to 11,524.

Sixteen states amended their registration laws during the past year, chiefly to raise the standards, bringing them into closer conformity to the model law.

Clarence L. Eckel, dean of engineering at the University of Colorado, was elected president of the council, succeeding Alexander Blair. Russell G. Warner, vice president of the United Illuminating Co., New Haven, Conn., was named vice president. Thomas G. Shedd, professor of structural engineering at the University of Illinois, and Ned Spaulding, consulting engineer, Hudson, N. H., were elected directors.

NLRB not eager for building cases

Recent recommendations of the National Labor Relations Board trial examiners underline NLRB's determination not to assert its jurisdiction over construction projects which are "essentially local in character."

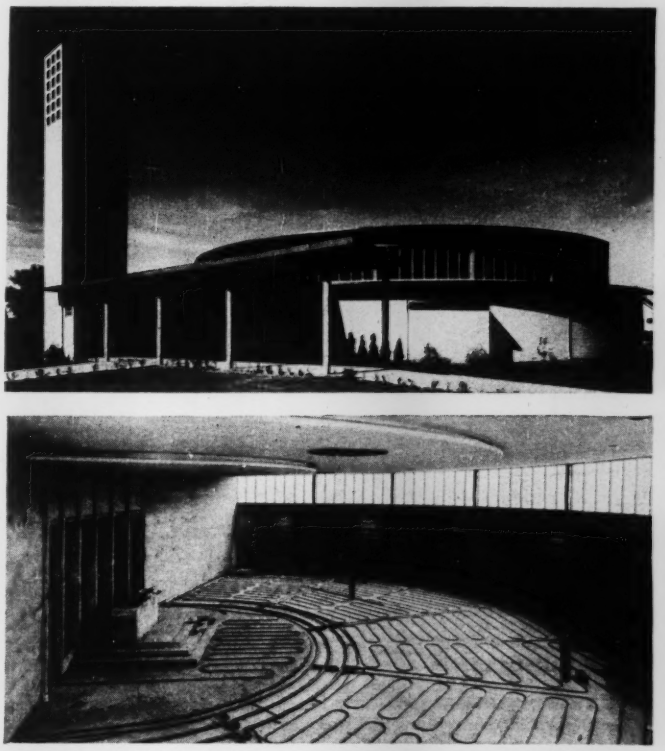
The latest recommendation—if adopted by the full board—would exclude from requirements of the Taft-Hartley act an association of 42 general contractors, 80 subcontractors and 40 materials dealers who do most of the industrial and commercial construction in and around Buffalo, N. Y.

It will be especially significant for the construction industry if the board goes along with the trial examiner and rejects the Buffalo case. For one thing, members of the association—General Contracting Employers Association of Buffalo—last year did a gross business of $20,000,000 in the area and purchased about $4,000,000 worth of materials outside the state. For another, the board would be giving its approval to a closed shop agreement between the association and the AFL that is contrary to the Taft-Hartley law.

Charges in the case were filed against the association, two individual employers, two contracting firms, and the AFL laborers union, by six laborers who claimed they were fired illegally.

The defendants asked that the charges be dismissed on the ground that the board lacked jurisdiction. The trial examiner, while not denying the board had jurisdiction, recommended that the board not assert its jurisdiction because of the local aspect.

The Buffalo association was organized in 1936 for collective bargaining purposes only. Organization of local contractors in an association for collective bargaining "does not transform the nature or extent of the business performed by its members as individuals," the examiner asserted.



MODERN DESIGN IN CHURCHES—This Catholic church at Seattle is built of concrete, with exterior walls finished only with paint, interior walls with acoustic material and paint. None of its 500 seats is more than 50 ft. from the altar. Paul Thiry was architect. The Austin Co., builder. The church is radiant-heated.

Test state's right to force treatment

California's Board of Health has gone to court to force politically hamstrung Orange County to act on construction of $8,000,000 worth of sewage disposal facilities.

Voters approved bonds for the construction last February, but conflict between coastal and inland districts has prevented any action.

Recently, the State Department of Justice filed suit to compel the Orange County Sanitation Board to show why it has not moved to acquire existing sewage treatment works, hire engineers and build a treatment plant and outfall sewer line.

The action was part of an overall program by the health board to force compliance with California law forbidding contamination of state waters by inadequately treated sewage. The suit is considered a test of Health Board authority to require sewage treatment.

Last week defense lawyers argued that the court could not force district directors to act. The pleas were taken under consideration.

Meanwhile, Ewald Lemcke, chief engineer and manager of the Orange County Joint Outfall Sewer, resigned, removing one cause of contention.

Lemcke was favored by four inland districts to head the entire project, a stand which not only was opposed by the coastal group but also ran counter to recommendations of a three-man advisory board retained by seven of the eight districts concerned.

The three-man board (including Dean Franklin Thomas, president of the ASCE; Julian Hinds, chief engineer and general manager of the Metropolitan Water District, and A. M. Rawn, chief engineer and general manager of the Los Angeles County Sanitation Districts) recommended the appointment of Fred D. Bowlus, construction engineer with the Los Angeles County Sanitation Districts.

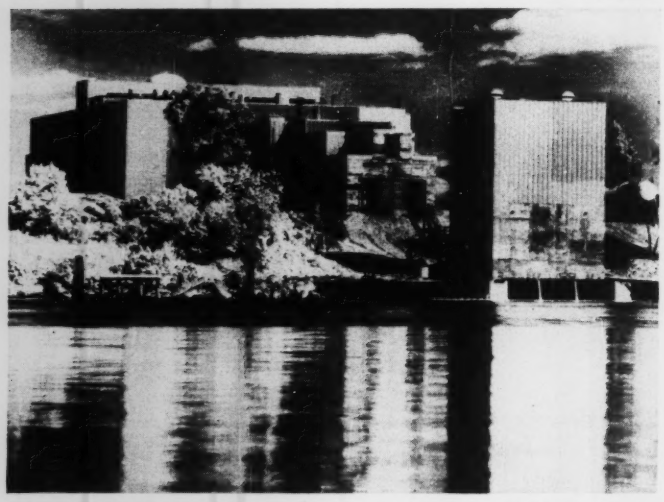
In another development, an investment company handling sales of the bonds called off the sale until some agreement could be reached.

It is proposed that a 20.6 mgd. primary treatment plant 5 mi. up the Santa Ana River, built in 1941-42, be purchased. Also proposed is the purchase of the land outfall from the treatment plant to the ocean, the booster pumping plant and a 2,700-ft. outfall, 42 in. in diameter.

A preliminary survey made a year ago called for this purchase and the building of another 28.8 mgd. capacity plant. A new 7,000-ft. outfall, 78-in. diameter, must also be built.

Of the eight districts, only one, District 8, Laguna Beach, has failed to vote bonds for the project. That district asked alternate studies before voting money for the joint project.

The eight member districts of the Joint Outfall System include four cities, Santa Ana, Orange, Anaheim and Fullerton, and four sanitary districts, Garden Grove, Placentia, Buena Park and La Habra.



LAST WORD IN LABORATORIES—Pratt & Whitney Aircraft Division, United Aircraft Corp., has spent $12,000,000 on this new jet engine test laboratory at East Hartford, Conn. The windowless building is six stories high, 400 ft. long and 166 ft. wide, built of reinforced concrete and steel. Service pipes feed hot or cold, thin or dense air to four test cells. Pump house at river's edge will circulate 120,000 gpm. and return it to the Connecticut River. Burns & Roe, Inc., New York, was engineering consultant. Albert Kahn Associated Architects and Engineers, Detroit, was architect. Turner Construction Co., New York, was contractor. It will go into service next year.

Maryland spurs road plan by major contract awards

Pushing rapidly ahead on its five-year, $200,000,000 highway improvement program, the Maryland State Roads Commission has awarded two major contracts for bridges in the Chesapeake Bay area.

The three projects, all directly related, include: two major contracts for the Chesapeake Bay Bridge; a contract for substructure of the Severn River bridge, and an invitation for bids on a new bridge over Kent Narrows.

The Kent Narrows bridge will link state highway routes on the eastern shore with the Chesapeake Bay bridge, and the Severn River bridge will carry through traffic from the Bay bridge to the south, bypassing Annapolis.

C. J. Langenfelder & Son, Inc., of Baltimore, received a $354,429 contract for construction of the east causeway of the bay bridge, and Construction Aggregates Corp., of New York City, got a $1,878,750 contract to construct sand islands to protect the cable anchorage piers No. 23 and 28 of the bridge. These islands will be about 138 ft. long and 150 ft. wide, 10 ft. above water level.

Contract for the $3,349,800 substructure of the Severn River bridge, to be built 1.25 miles upstream from the present span near the Naval Academy, went to Merritt-Chapman & Scott Corp., New York City.

Open $12 million road in British Columbia

A new $12,000,000 highway has been opened in southern British Columbia. It provides a direct link between Vancouver and the Similkameen and Okanagan valleys. Also it forms an integral part of the 613-mi. southern transprovincial highway to the Alberta border.

Known as the Hope-Princeton highway, it is an asphalt-coated, 24-ft. wide, 2-lane highway, the widest in Canada for two lanes.

Massachusetts studies hydro possibilities

Corps of Engineers representative discusses disparities between federal, private power capacity figures

Massachusetts continues to be concerned about the disparities in estimates of New England's hydroelectric development possibilities, and sentiment exists for still another survey—by the Army Engineers—to determine finally what can be expected from further development.

W. F. Restall, of the Army's civil engineer staff at Boston, discussed the disparities between hydro potential estimates at a hearing in Boston, held by a legislative committee. Earlier, the New England Council issued a report prepared by the firm of Charles T. Main which found a prospective development of 400,000-480,000 kw. of hydroelectric capacity available in New England.

Disparities explained

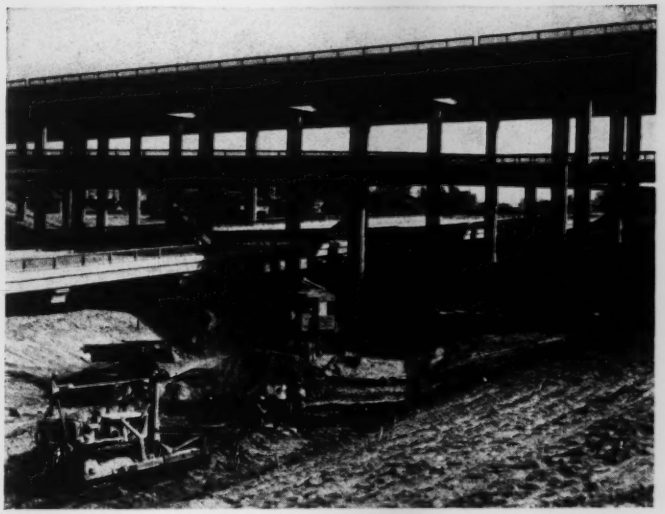
The Federal Power Commission, to the contrary, has released a survey of its own which declares that New England could add 2,600,000-3,100,000 kw. of hydroelectric capacity by full development of its rivers. Two of the factors behind this disparity are the lower cost of federal financing, which might lift marginal projects into the feasible class, and comprehensive development of streams rather than single purpose project development. The FPC plan envisions allocation of costs to flood control and other benefits as a means of justifying power installations which could not pay for themselves on a single-purpose basis. The two surveys also differed widely on anticipated load growth in New England.

Army prefers own survey

Restall made it plain that the Army prefers to make its own survey before going on record.

Chief Engineer Arthur Weston, of the Massachusetts Public Health Department's sanitary division, questioned the extent of Massachusetts' hydro potential, both from the standpoint of river flow and economic feasibility. He noted the prospects of serious land damages if undeveloped stream flow were utilized, and pointed out that steam capacity would be required in any case to carry anticipated peak loads.

New England's hydroelectric potential—and how to develop it—was to have been discussed this month at a Democratic regional session (see p. 17). Meeting's now set for January.



FOUR-LEVEL INTERSECTION—Within a mile of Los Angeles' city hall, a four-level grade separation to handle traffic loads from four freeways is nearing completion, at a cost of $5,000,000. At that point, traffic will converge on various levels from Pasadena's Aroyo Seco Freeway, the Hollywood Freeway, the Harbor Parkway from San Pedro, and Sunset Boulevard's overflow. Eventually, other freeways will hook up with this master intersection within the heart of Los Angeles.

Schuylkill desilting program effective

Eastern Pennsylvania's Schuylkill River now carries less than a tenth of a percent of the solids which clogged it two years ago.

That's the achievement so far of a $35,000,000 desilting program the commonwealth is conducting on a stream flowing between the anthracite fields and the Delaware River at Philadelphia. It'll be half done next summer, completed in 1951, according to Admiral F. M. Draemel, secretary of Forests and Waters.

The federal government is due in the picture next summer when work is half done. It will begin a $20,000,000 dredging and clearance project between Norristown, on the lower river, and Philadelphia.

So far, Draemel says, 4,100,000 tons of culm—mud mixed with anthracite fines from the upstream coal breakers—have been removed from the stream bed. Just two years ago, the Schuylkill carried 349,000 tons of solids monthly past Kernsville. Last September, only 412 tons went past this gage, Draemel said. Officials figure there's another 25,000,000 tons to come out of the stream before the job's done. Deposits—as deep as 12 ft.—killed fish and vegetation and contributed to floods.

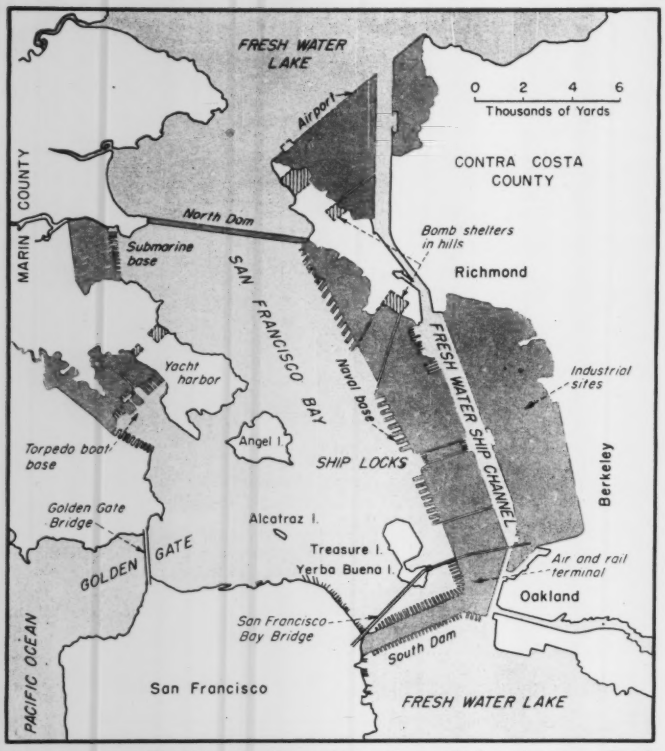
Now building are three large desilting dams, (ENR March 10, p. 21) to slow the stream's flow and to let silt settle, for dredging regularly. There's no more coal breaker wash going into the stream, though. It's been halted at the 44 collieries which for years dumped into the stream. Now, they maintain their own desilting basins. Additional basins of this type dot the river's edge near dredging operations.

As part of the same program, abatement of industrial and municipal pollution of the stream is being sought through orders to cease polluting. Industries and municipalities which haven't yet complied have treatment plants under construction or being planned, according to Pennsylvania's Health Secretary, Dr. Norris W. Vaux.

Out of it all, Pennsylvania expects to get a clean stream—and $15,000,000 worth of salcable anthracite which can be burned as fines or made into anthracite bricks or eggs.

Meramec hearings set

Corps of Engineers has scheduled four hearings, starting Dec. 3, on three dams proposed for the $49,500,000 Meramec River development, in Missouri. Hearings will be open to the public in each city.



Central portion of San Francisco Bay as Reber plan would have it appear. Deeply shaded areas show transbay dams and shallow areas to be filled in for industrial uses.

Reber plan for San Francisco Bay kept active despite opposition

A plan that would convert about 85 percent of San Francisco Bay into two freshwater lakes, accessible through locks, is still being widely advertised and discussed in central California. Despite the fact that its highway and railway bay crossing elements were definitely scrapped by the Army-Navy board that reported in favor of either a bridge or tunnel and causeway, proponents of the plan (known locally as the Reber plan) continue to push for its adoption.

Fuel for the effort is furnished now by the squabble over the location of a new vehicular crossing for San Francisco Bay, in which two opposing factions, both including city or state officials, are engaged. One side favors a bridge parallel to the existing structure (ENR Nov. 25, 1948, p. 39). The other advocates a "southern crossing" (ENR Feb. 13, 1947, p. 3) partly in tunnel under the bay.

Actually, the Reber plan is not a factor in the current controversy, but its proponents, by pointing to its bay-crossing facilities, have been able to cloud this fact in some quarters.

Little engineering support

The Reber plan has been kept alive chiefly in talks before service clubs or social and fraternal organizations and through newspaper publicity. Support has come mainly from laymen, though a few engineers have also endorsed the plan or have indicated a desire to see it studied in detail.

The extent to which this interest has spread and gained political influence is indicated by bills concerning the Reber plan now pending before the California legislature and Congress. Also, Senator Sheridan Downey (Dem., Cal.) has announced a public hearing on the plan in California for this winter. Description of the actual construction proposed, so far as any details have been announced, were published in ENR July 11, 1946, vol. p. 56.

Claims of proponents

Benefits to be gained from revamping nature's arrangement of San Francisco Bay, according to Reber plan supporters, are manifold. Some of the major claims are: Freshwater reservoirs to serve adjacent lands, storage for flood waters, greatly increased area of waterfront land for industrial development, multilane roadway on a transbay dam, railroads on a dam leading directly into a San Francisco terminal, freshwater anchorage for ocean-going vessels and underground airplane and ammunition storage space.

Claims of opponents

Opponents of the plan point to facts and findings of record that appear to make any such scheme undesirable or impracticable on numerous counts. For example, the joint Army-Navy board that spent eight months studying all aspects of additional crossings of San Francisco Bay, worked under specific instructions to "include the Reber plan" in possibilities to be considered. Findings of this board were that "the Reber plan would result in the dislocation of industry, is economically infeasible and is untenable from the standpoint of navigation and national defense."

Studies of particular importance with respect to keeping open the entrance to San Francisco Bay have been made by Prof. M. P. O'Brien, dean, College of Engineering, University of California. He points out that outside the Golden Gate there is a submerged bar, arranged roughly in the arc of a circle centering at the Golden Gate. The bar is about 5 miles outside the gate and 13 miles long. It is formed largely of the sand constantly being carried along the coast by ocean currents. According to Prof. O'Brien, were it not for the sweep of tides that rush through the Golden Gate, this bar would build up beyond the permissible "four-fathom bank" level.

Bar stable now

Tidal currents are directly proportional to the inland area affected. This area, as determined by Army engineers, totals about 300,000 acres and the main volume of tidal movement is about 1,200,000 acre-ft. The surge through the Golden Gate, twice daily, of this great quantity of water combats the ocean currents and maintains the four-fathom bank in a state

of more or less equilibrium and subject only to minor changes. With a reasonable amount of dredging, such as is carried on by the War Department, suitable channels for ocean-going vessels are maintained through this bar.

If the tidal prism were to be reduced to 15 percent of its present volume, as the Reber plan proposes, the bar would move shoreward, Dean O'Brien points out, and would close up the Goden Gate except for the small inlet maintained by the 15 percent of present tidal flow. The very least that could be expected to maintain artificially any sort of waterway to the ocean would be the construction of jetties to extend out at least 5 miles from the shoreline. No one has ventured to estimate the cost, but it would be extremely high.

Waste of freshwater

Because water conservation problems are in sharp focus in California just now, the Reber plan draws criticism, particularly from those concerned with the state's water resources. Estimates vary widely as to the amount of freshwater that would be lost in locking ships to and from the areas behind the transbay dams. But there is general agreement as to the amount of evaporation from the upper and lower arms of the bay. If these were freshwater lakes, this evaporation would have to be replaced from freshwater storage instead of coming from tidal waters, as at present.

Whatever the total amount of evaporation and lockage losses, this would be very serious as an added drain on water resources already depleted to a critical stage. This situation led to the statement by the joint Army-Navy board of engineers that the Reber plan "would misuse freshwater and would retard the full future economic development of northern California."

Five reports by engineers or groups of engineers, all adverse to the Reber plan, have been made so far. This heightens interest in what Senator Downey's public hearings will show.

First farm housing loan

Federal public housing, gathering momentum under its new charter—the Housing Act of 1949 (ENR July 7, p. 49)—moved into another field last week when its first farm housing loan was made. A $4,000 check went to an Alabama farmer for a new home, barn, well and water system. It will replace an ancient home which is beyond repair. There's $25,000,000 available for the program.

NEW BUSINESS MACHINE PLANT—Here's the 60-ft. craneway bay, with enclosed railroad siding and truck dock, at the new Niles, Ill., plant of the A. B. Dick Co. Metal-working positions have been arranged in direct lines from this bay to final assembly departments. Designed and built by The Austin Co. for year-round ventilating control, the 454,000-sq. ft. plant has a flat roof of poured-in-place gypsum with glass fiber insulation. Framework is of 60-ft. H-section welded trusses and 40-ft. jack trusses. These also support 43 platforms on which equipment for controlled ventilation is installed. Glare-reducing glass is used in a continuous band of sash around three sides of the plant. Concrete sill walls and corrugated asbestos complete the enclosure.

First Ranney-type well in Canada being built

First of its kind in Canada, an 82-ft. deep Ranney-type well is being sunk on Vancouver Island, British Columbia, to supply naturally-filtered water for a new pulp mill being built by Nanaimo Sulphate Pulp Ltd.

The well, developed by California inventor Leo Ranney, is being installed by the Ranney Water Installations Division of Signal Oil and Gas Co., under supervision of Wesley C. Holler. It's the first of two to be built.

A concrete caisson 16 ft. in dia. forms the well. From it, a series of perforated, lateral, seamless steel pipes extends various distances into the gravel, some as far as 150 ft.

About a dozen laterals, totaling approximately 1,000 ft., are installed in the well. It was sunk about 5½ mi. from the plant after extensive tests showed this spot was situated over an alluvial plain where water flows from the mountains to the sea.

An electric pumping station with deep-well turbines will pump water from the caisson to the pulp mill through a 5½ mi., 40-in., wood stave pipeline.

Reason for the well is that natural filtration, unlike artificial processes, removes all color from the water. Thus it is pure enough to use directly in the bleaching process without further treatment. Alternative would have been construction of a dam plus a filtration plant. The dam would have been considerably more expensive and might also have interfered with fisheries.

The alluvial well area acts as a reservoir resembling a broad, flat underground "lake." When operating, the well draws water through its feeder system of radials and lowers the water table in the vicinity in a cone of depression extending several hundred feet.

Planning funds available

State allotments from the $25,000,000 available for advance planning of works programs have been announced by General Services Administrator Jess Larson. The program will be administered by GSA's Bureau of Community Facilities. Held out is a discretionary fund of more than $5,500,000 which GSA will reserve for emergency use in distressed areas.

Housing is excluded from projects for which planning loans are made. And a plans loan doesn't commit Congress to financing the project.

CONSTRUCTION BUSINESS

Backlog shows small October increase

The backlog of proposed engineering construction increased by only $71 million in October. This compares with increases of $536 million in September, $238 million in August and $368 million in July. With these additions, this continuous inventory by ENGINEERING NEWS-RECORD of proposed engineering construction stood at $46.35 billion at the end of October. This is 7.7 percent higher than the backlog was a year ago.

The low October increase is due to heavy withdrawals of federal and private projects as they advanced to active status. The private engineering construction backlog dropped $51 million and the federal backlog $18 million. State and municipal projects totalling $140 million are responsible for the $71 million overall increase.

Only the three classes of heavy building, highway construction, and unclassified public work were being planned at a greater rate in October than the rate at which they were being taken out of the backlog and advanced to the contract stage. Waterworks, sewerage, both public and private bridge-building, earthwork and drainage and private unclassified projects were going under contract faster than new plans could be added to the backlog.

By individual types of work the situation may be summed up as follows:

Waterworks: Backlog reached a peak of $1,212,500,000 in August, net decline by end of October was $45,900,000 or 4 percent.

Sewerage: Backlog reached peak 'way back in March at $2,181,500,000; to date, decline has been $36,900,000 or nearly 2 percent.

Bridges: Public bridge-building backlog was at a peak of $1,472,400,000 in September, dropped $2,600,000 during October, or 0.2 percent. The private bridge backlog attained its peak in July at $50,488,000, dropped $6,688,000 or 13 percent between July and October.

Earthwork and drainage: Backlog at peak in July at $7,534,100,000, reduced by $21,200,000 or 0.3 percent through October.

Highways (streets and roads): Backlog still on the increase in October has increased nearly 10 percent over a year ago to $4,430,300,000.

Public buildings: Backlog continues on the upgrade, total of $10,371,900,000 by October's end is more than 10 percent higher than a year ago.

Public unclassified: Rising also; backlog of $4,693,100,000 at close of October is about one-half percent over last year.

Industrial building: Backlog still increasing as with other heavy-building; at $4,441,600,000 it is 14½ percent above October 1948.

Commercial building: At $5,580,000,000 backlog continues rise which amounted to 10½ percent during the year elapsed since last October.

Private unclassified reached a peak of $4,580,000,000 at end of September, to decline $82,600,000 or nearly 2 percent during October.

Comparison of backlogs now and a year ago is shown on the table below.

Construction Backlog
(millions of dollars)

	Oct. 1949	Oct. 1948	% chge. 49/48
Public	31,789.1	30,223.8	+5.2
Waterworks	1,166.6	1,163.5	+0.2
Sewerage	2,144.6	2,176.6	−1.5
Bridges	1,469.8	1,381.7	+6.4
Earthw'k & dr.	7,512.9	7,398.2	+1.5
Str. & roads	4,430.3	4,033.7	+9.8
Buildings	10,371.9	9,399.1	+10.3
Unclass.	4,693.1	4,670.9	+0.5
Federal	9,793.8	9,399.5	+4.2
Private	14,562.9	12,824.2	+13.5
Bridges	43.8	37.5	+16.8
Ind'l bldgs.	4,441.6	3,879.1	+14.5
Comm. bldgs.	5,580.0	5,048.9	+10.5
Unclass.	4,497.4	3,858.7	+16.5
Total	**46,352.0**	**43,048.0**	**+7.7**

Steel output up to 54%

Steel production last week was 54 percent of the industry's capacity, reports the American Iron and Steel Institute. This is a 33 point rise over the previous week's rate, 45 points higher than a month ago. Total output at the current rate will be 995,500 net tons of ingots and steel for castings.

October steel production was the lowest since July 1932. Output for the entire month was 916,696 net tons, compared with 6,591,908 tons in September, and nearly 7,997,000 tons in October 1948. Production for the first ten months of the year dropped to 90 percent of the comparable 1948 figure, or 65,927,815 tons.

Pine-fir lumber output running 9% below 1948

Production of three major types of construction lumber for the first ten months of 1949 averages 91½ percent of last year's output, reports the Nat'l Lumber Manufacturers Assoc.

Douglas fir lumber, the biggest item productionwise, has run the closest to 1948 of the three: ten-months output of 3,699,347 Mbf is 95 percent of the comparable 1948 figure. Western pine produced in the same period totals 2,310,499 Mbf, 91 percent of last year; and southern pine production of 706,470 Mbf is 89 percent of the total a year earlier.

Shipments of these types of lumber have ranged from 93 percent of 1948 for both southern and western pine, to 99 percent for Douglas fir. Yet, compared with production, shipments of 3,829,253 Mbf of Douglas fir were 4 percent higher; 2,425,143 Mbf of western pine was 5 percent higher; and 724,241 Mbf of southern pine shipped was 3 percent above production for the period.

Fourth biggest award week ends heavy-contract slump

Heavy construction appeared to be jolted out of its six-weeks-old doldrums last week by the fourth highest volume of contract awards on record for the year. A total of $217 million worth of contracts were reported to ENGINEERING NEWS-RECORD.

The spurt in volume is greatest for private mass-housing, sewerage and bridge construction, but is shared by all major classifications. Only three of the nine failed to top their average for this year to date.

Concrete paving below '48

Portland cement concrete paving awards totalling 2,647,506 sq. yds. in October were 9 percent below a year ago, according to the Portland Cement Association. Road paving awards at 1,037,099 sq. yd., were down most 23 percent. Streets and alleys dropped 11 percent to 1,123,864 sq. yd. Airport concrete pavement, on the other hand at 486,543 sq. yd. topped last year's mark by 62 percent.

For the first ten months of this year, concrete paving contracts are fractionally below 1948. PCA reports the total to date at 39,876,474 sq. yd.

October work in place up

Construction put in place during October was 2 percent above a year ago, as reported by the Department of Commerce. An estimated $1,856 million worth of new work went on record. This is a less-than-seasonal 2 percent decline from the $1,892 million estimated for September. Continuing expansion of housing, schools and hospitals is credited by Commerce with holding up total volume.

BIDS AND BIDDERS

(Major project news received after Construction Reports, page 80, went to press.)

Baltimore Express Highways—City Planning Commission, Baltimore, Md., offered a $195,000,000 long-range program for constructing expressways through City of Baltimore to speed up traffic.

Ohio Bond Issue—City of Cleveland voted $5,500,000 for improving airports, $3,500,000 for widening streets and bridges, and $1,500,000 for parks. However, approval on these issues fell below 65% of votes required by Ohio law and will be submitted to the courts for sanction. $2,000,000 bonds were voted with necessary majority for intercepting sewers. Bonds defeated were for fire stations, $2,000,000; and for maintenance building, $1,000,000. Other Ohio municipalities which approved bonds, all for schools, were Maysfield Heights, $1,000,000; Elyria, $3,700,000; Parma, $3,250,000; and Cleveland Heights, $2,750,000.

Wolf Creek Power Plant—E. J. Albrecht Co., Chicago, Ill., has been awarded contract to build Wolf Creek Power Plant on Cumberland River, Kentucky, by the U. S. Engineers, Nashville, Tenn., at $5,558,719.

Pipeline—Texas Illinois Natural Gas Pipe Line Co., c/o Chicago District Pipe Line Co., Chicago, Ill., plans 1,018 miles of 30-in. natural gas pipeline between Houston, Tex., and Joliet, Ill., to traverse Texas, Arkansas, Missouri and Illinois, at estimated cost of $98,966,700.

Water Pipeline—Public Utilities Commission, San Francisco, Calif., received low bids for 34 miles water pipeline from Irvington Portal to Pulgas near Crystal Springs Lake, from Arturovich Brothers, Paramont and P. Rados, Inc., Los Angeles for Sect. A, Schedule 1, $2,156,018; Sect. B, Schedule 3, $4,096,996. Morrison-Knudsen Co., Inc., San Francisco, were low on Schedule C at $2,302,355.

Military Housing—Commanding Officer, Fourth Army, Fort Sam Houston, Tex., will open bids Dec. 12 for sponsor to construct, manage and finance 500 dwelling units for military personnel at Fort Sam Houston. Estimated cost is $4,300,000. Department of the Army, Fifth Army, Chicago, Ill., is also selecting sponsor for housing in Chicago to cost $1,800,000.

Roads—Pennsylvania Highway & Bridge Authority, Harrisburg, Pa., plans constructing 12.13 miles multilane Schuylkill Expressway from Pennsylvania Turnpike at King of Prussia along Schuylkill River to Philadelphia City Line, Montgomery County, $15,927,965; also 9.27 miles five sections of Penn-Lincoln Parkway west from Banksville Circle to Steubenville Pike, Allegheny County, $8,003,600.

Housing—Tampa Housing Authority, Tampa, Fla., plans constructing 1,500 housing units. Estimated cost of units is $5,000,000.

Incinerator—Standard Construction Co., Columbus, Ga., was low bidder on incinerator plant addition, at Atlanta, Ga., at $1,292,900 when bids were opened by City of Atlanta. Robert & Co., Atlanta, is engineer.

Cherry Creek Dam—City of San Francisco, Calif., voted $4,000,000 bonds to construct Cherry Creek Dam, for San Francisco water supply. The Public Utilities Commission will be in charge of project.

Hotel—Swenson Construction Co., Kansas City, Mo., has been awarded contract to construct hotel in Kansas City, Kan., for the Wyandotte Hotel Co., Kansas City, Kan., at $2,035,856. E. J. Stern, Kansas City, Kan., is doing the architectural work.

Road—J. R. Williams, Pitman, N. J., was low bidder for improving part of Route 44, Gloucester Freeway, at $1,031,946, when the New Jersey State Highway Commission, Trenton, opened bids.

Airport—Boeing Airplane Co., Wichita, Kan., will take bids about Dec. 15 for airport improvements at Wichita Municipal Airport. Estimated cost is $1,135,000. Wilson & Co., Salina, Kan., is engineer.

Bridge—Charles MacCloskey, San Francisco, R. E. Hazard Construction Co., and C. G. Willis & Sons, San Diego, have been awarded contract by the California State Highway Department for bridges and roads in San Diego County at $1,284,272.

High School—John J. Keeley Contracting Co., East St. Louis, Ill., has been awarded contract to build Cahokia Commonsfield High School by School District 187, Maplewood, Ill., at $1,791,906. Charles B. Spencer, St. Louis, Mo., is architect. Altman-Goldenberg Associates, East St. Louis, Ill., is engineer.

COSTS AND VOLUME

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Nov.' 49	480.02	230.75
Building Cost	Nov. '49	352.77	190.70
Volume	Oct. '49	248	109

Activity This Week

As reported to ENR (in millions of dollars)

Amount of contracts let

	Week of Nov. 24 1949*	Cumulative 1949 (47 wks.)	Cumulative 1948 (48 wks.)	% chge av.wk.
Federal	$10.1	$929.7	$879.5	+8
State & Mun.	35.2	2,882.3	2,420.8	+22
Total Public	$45.3	$3,812.0	$3,300.3	+18
Total Private	44.9	3,481.8	3,075.5	+16
U. S. Total	**$90.2**	**$7,293.8**	**$6,375.8**	**+17**

Contracts by type of work

	This Week	Cumulative 1949 (47 wks.)	Cumulative 1948 (48 wks.)	% chge av.wk.
Waterworks	$1.0	$188.9	$184.2	+5
Sewerage	4.1	257.8	203.6	+29
Bridges	2.5	329.5	266.4	+26
Highways	9.2	836.4	927.2	−8
Earthwork, Waterways	8.9	476.6	475.2	+2
Buildings, Public	16.1	1,445.7	1,041.9	+42
Industrial	6.5	884.3	1,002.3	−10
Commercial	33.2	2,136.1	1,693.1	+29
Unclassified	8.7	738.4	581.9	+30

NOTE: Minimum size projects included are: Waterworks and waterway projects, $28,000; other public works, $50,000; industrial buildings, $68,000; other buildings, $250,000.

New capital for construction

	Cumulative 1949 (46 wks.)†	Cumulative 1948 (47 wks.)	% chge av.wk.
NON-FEDERAL	$5,094.6	$4,227.8	+23
Corporate Securities	2,038.4	1,949.6	+7
State and Municipal	2,671.2	1,785.9	+53
U. N. Building Loan		75.0	...
Federal-Aid Highway	385.0	427.3	−8
Federal	1,748.2	1,558.9	+15
Total Capital	**$6,842.8**	**$5,786.7**	**+21**

* Four-day week
† Week of Nov. 17; 47 weeks not available.

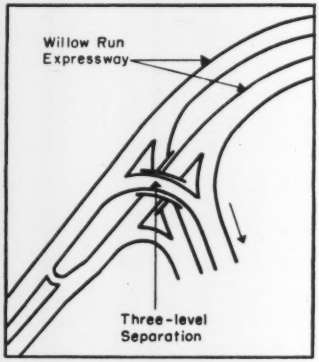


FIG. 1. INTERCHANGE of the T-type on the Willow Run Expressway, one of two near the former bomber plant. The three-level crossing permits all movements to be normal but adds materially to the cost. (Photos copyrighted by Abrams Aerial Survey Corp.)

Michigan Experience Shows Advantages

H. C. Coons
Deputy Commissioner-Chief Engineer
Michigan State Highway Department
Lansing, Mich.

EXPERIENCE gained with highway intersections on the Detroit Industrial Expressway and the Willow Run Expressway has demonstrated that the direct-connection type of traffic interchange is most desirable and that savings in land costs, through the use of a compact layout requiring bridges, frequently will more than offset the cost of these structures.

During the war years the Michigan State Highway Department was charged with the task of providing access facilities for the huge Willow Run Bomber Plant located near Ypsilanti, 25 miles southwest of the center of Detroit. Prior studies of highway needs for Michigan had indicated, among other things, that:
(a) A highway of the express type was needed to serve the southern Michigan industrial centers, and that;
(b) A system of expressways within the City of Detroit was required to free the city from traffic paralysis.

Since the location selected for the bomber plant was in the southern Michigan industrial area it was decided to construct a link of the required expressway as a part of the access route necessary to serve the plant. This link extends from the western terminus of the proposed Edsel Ford Expressway in the City of Detroit to a point near the bomber plant, a distance of 16 miles. It is known as the Detroit Industrial Expressway. (ENR Jan. 14, 1943, p. 126).

From this expressway the Willow Run Expressway System was planned to serve the bomber plant. It also provides a much needed addition to the trunkline system in this locality.

The decision to construct these expressways provided the department's engineers, whose prior experience in interchange design had been generally limited to surface intersections in urban areas, with the opportunity to make detailed studies and designs for highway interchanges located in rural areas with relatively low right-of-way costs.

A study of the existing road pattern and the proposed route for the Willow Run System showed that all points where traffic interchanges were necessary could be served by the T or Y-type intersection (Fig. 2 and 3). A similar study of necessary interchange points on the Detroit Industrial Expressway indicated that provisions for turning movements in all quadrants would not be necessary because the proposed route traversed diagonally across the existing highway system.

From these studies it was concluded that a direct-connection type of interchange was best suited to conditions encountered and so this type was proposed to handle all major traffic movements.

Advantages demonstrated

The ability of the direct-connection type of interchange to move large

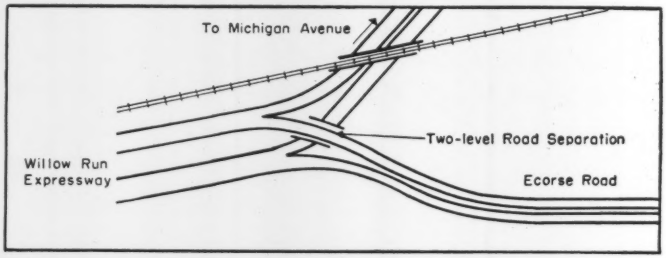


FIG. 3. Y-TYPE INTERSECTION where traffic from two main arteries merges at one end of the Willow Run Expressway. All movements are normal and all interference is eliminated by a single two-level road separation structure.

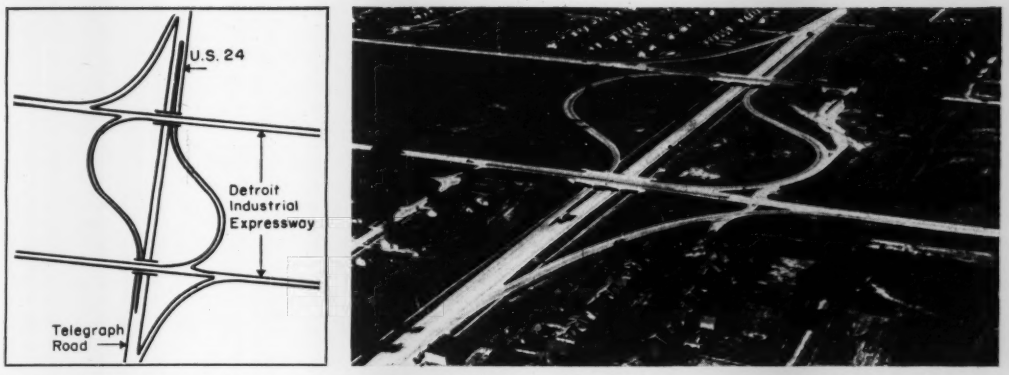


FIG. 2. DIRECTIONAL FLOW is made possible by this arrangement but the left turn from the high-speed lanes on the expressway interferes with traffic moving in those lanes. Provision for movements in all directions were not required at this intersection.

Of Direct-Connection Type Interchanges

volumes of traffic efficiently and expeditiously has proved the selection of this type to be correct. Experience gained in peak traffic operating conditions have emphasized the following advantages:

(a) Traffic flows smoothly due to simplicity of design and ease of operation from the motorist's standpoint.

(b) Large volumes at peak rush hours are handled with a minimum of confusion.

(c) Accommodation of large vehicles and special trucks proved successful on all occasions.

(d) Generally, vehicles can operate at higher speeds with safety.

(e) Travel distance is shortened and time saved, which is an important economic factor for all types of traffic.

The Y-type interchange with direct connections is illustrated in Fig. 3. This interchange is located at one end of the Willow Run System and connects the expressway with Michigan Ave. (US-112) and Ecorse Road (State Trunkline 17).

Three interchanges of the Y type were constructed on the Willow Run System. The highway department considers this type of interchange to be most practical and efficient for the three-road Y intersection where no traffic movements are required between the two arms of the Y. A study of the layout will show that no time or distance is lost in making a transition from one road to another.

The T-type interchange with direct connections is illustrated in Fig. 1. Two interchanges of this type were constructed on the Willow Run Expressway System. The one illustrated serves as a traffic interchange between the East-West and North-South arms of the system. This design requires a tri-level grade separation and provides for the execution of all desired movements. Transitions on this facility are simple and direct. The interchange type illustrated is expensive due to multi-level structure required. However, this interchange is not overdesigned since each leg of the T carries a large traffic volume. Today the interchange and its twin serves the Kaiser Frazer Corp. new occupants of the Willow Run Plant.

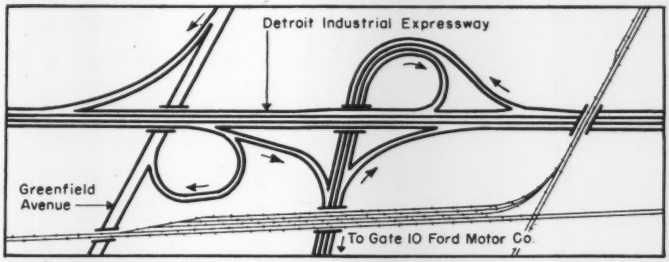


FIG. 4. A TRUMPET TYPE interchange permits free flow from the Detroit Expressway at the Ford plant. Time and distance are lost in the right-hand loop movement for left-turning traffic from the Ford plant .

Three-level interchange

The illustrated three-level interchange is exceptionally desirable at intersections where high volumes of traffic are expected in all directions. At intersections where a minor amount of traffic is expected in two directions, the trumpet-type interchange, as in Fig. 4 could be used.

This modified T-type design provides for direct connections for major traffic movements. An inner loop is provided for one of the minor turns while the other is taken care of by a direct connection of lesser design standards. The interchange shown is located on the Detroit Industrial Expressway and provides an expressway connection to Gate 10 at the River Rouge plant of the Ford Motor Co.

Only one interchange of this type was constructed on the two expressways. It gives satisfactory service in

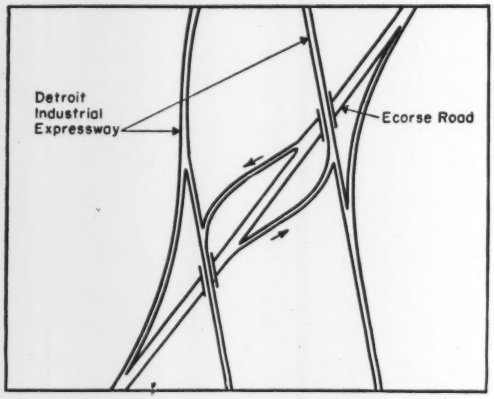


FIG. 5. AT THE ECORSE ROAD CROSSING and at Telegraph Road the lanes of the expressway were widely separated to permit directional flow movements. Provisions for left turns were not necessary at Ecorse Road due to the nearness of other highways.

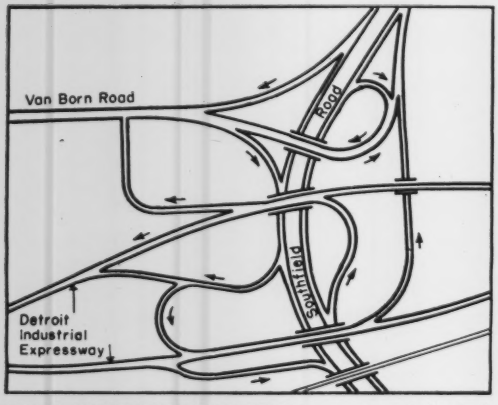


FIG. 6. AN INTRICATE PROBLEM was presented by the intersection of an important traffic artery (Van Born Road) where Southfield Road crosses the Detroit Expressway. Conspicuous route signs are needed at such an intersection.

handling peak plant traffic movements, but some loss of time and distance is required in negotiating the right-hand loop used by left-turning traffic leaving the plant.

Fig. 5 illustrates a direct connection type of interchange used at the crossing of the Detroit Industrial Expressway and Ecorse Road (State Trunkline 17). The design shown provides a satisfactory solution for the execution of traffic movements between an important road and a high-speed expressway where interchange movements in all quadrants are not required. Traffic entering or leaving the high-speed road on this interchange does not interfere with the smooth flow of traffic on either of the roads.

Fig. 2 illustrates the same type of interchange as shown in Fig. 5. This facility is located at the intersection of the Detroit Industrial Expressway and Telegraph Road (US-24). Although this type proved satisfactory at the Ecorse crossing, experience has shown that smooth flow of traffic on the expressway at the Telegraph Road interchange is somewhat impeded by the left-turning movements. The impediment is caused by the necessity for left-turning vehicles to decelerate to slow in order to negotiate ramp curves. No provision for left turning was necessary at Ecorse Road.

Expensive structures involved

Interchanges illustrated in Fig. 5 and 2 are expensive due to the necessity for two structures and for the excessive right-of-way required to separate the roadways a sufficient distance to accommodate the inner ramps. The removal from tax rolls of the properties necessary for this type of construction creates a problem for local governmental units by reducing available tax sources. However, accelerated construction in areas served by the expressways should increase remaining property values to a point where tax revenues are equal to or greater than those lost.

Fig. 6 illustrates a direct-connection type interchange with one inner loop providing for a major traffic movement. The necessity for providing access to an important traffic artery in the vicinity created an intricate problem. This interchange is located at the intersection of the Detroit Industrial Expressway and

Southfield Road, an important county artery. Here again the items of expensive right-of-way and excessive land use are a strong objection.

Due to restricted topographic conditions at this intersection some of the ramp designs do not present an ideal solution to the existing problem and there are cases where sight distances are unfavorable. This interchange receives some criticism from the public because of the confusion it creates in the average motorist's mind. A large part of this confusion is caused by the difficulty encountered in placing adequate directional traffic signs to guide the motorist not familiar with the street layout in this locality. The repeat driver who uses the interchange daily is soon educated in the proper use of the various ramps and experiences little difficulty or delay in negotiating the interchange smoothly.

FIG. 7. A DIRECT CONNECTION interchange was adopted as the only practical solution where the John C. Lodge and Edsel B. Ford expressways cross.

Expressways in Detroit

The highway department is currently engaged in the design and construction of two expressways within the city of Detroit.

These expressways—the Edsel Ford and John C. Lodge—are the initial links in the proposed expressway system designed to relieve traffic congestion in the heart of the city. They are the result of joint planning by officials of the Michigan State Highway Department, the City of Detroit, the Board of Wayne County Road Commissioners, and the Bureau of Public Roads.

The Board of Wayne County Road Commissioners, acting as agents for the State Highway Department, are charged with design and construction of the John C. Lodge Expressway, operating directly under the department's road and bridge divisions.

The Edsel Ford Expressway extends from the eastern terminus of the Detroit Industrial Expressway at the west city limits across the city northeasterly to the north limits, for a distance of approximately 15 miles. This expressway will serve the heavy industrial and east side residential areas of the city, and will provide a much needed crosstown route. Final design is well along and considerable construction is complete or under way in the western 5 miles. A 2.5-mile section from its western end to Warren Ave. is scheduled to be entirely completed during 1950.

The John C. Lodge Expressway begins in the downtown business area and extends in a northwesterly direction through the city for a distance of 7 or 8 miles. First construction will be on the southerly 3.5 miles. This expressway will serve the business district and a heavily populated residential area, and will connect with the east-west Edsel Ford Expressway. Bridges, much utility work, pumphouses, etc. are complete or under construction on the Lodge Expressway. The first general grading and paving contract will be let this fall.

The expressways as planned will be of the depressed type with two 36 ft. concrete pavements separated by a 14-ft. median strip. Entrance and exit ramps are to be provided at all necessary points along both expressways, as agreed upon by the participating agencies. These ramps will connect the expressway to one-way service roads and will serve for traffic interchange between the expressways and city streets.

Direct connection planned

At the junction of the expressways the highway department is planning a direct connection type interchange for all traffic movements. This interchange is illustrated in Fig. 7. The design selected for ultimate construction was chosen after a comprehensive study of the various types of interchanges. In all, 12 different types were studied. These included a fully bridged rotary, the conventional clover-leaf, and various direct-connection types.

The bridged-rotary type was eliminated from consideration after a thorough study and consultation with officials of other states where the rotary type of traffic interchange is used. At that time department engineers made field investigations on interchanges of all types under actual operating conditions.

The clover-leaf type was eliminated because of excessive right-of-way requirements, and because the loss in time and the increase in travel distance necessary to complete left turning movements would in the end prove costly to the public.

Eliminate some types

Various direct connection types were also eliminated because of excessive right-of-way requirements, loss of time and distance required for left turning movements, construction costs, restricted speeds, adverse alignment, excessive grades, and removal of high value land from the tax rolls.

The interchange type selected was chosen for its simplicity of movements, directness of connections, minimum right-of-way requirements and cost.

Traffic movements on this interchange are natural. Left turn movements in all quadrants are made by turning in the direction desired, in contrast to other type interchanges where a right turn is required. This simple movement should eliminate much of the driver confusion present on some types of interchange.

Less right-of-way required

The directness of the ramp connections is apparent. In studying left turn movements presented by the various interchanges suggested for the location it was found that single movements were shorter by 0.11 miles on the selected design than on any of the others. The type selected also requires the least amount of right-of-way of the several designs considered. This was an important factor in the ultimate selection of the interchange, since the savings in land cost were sufficient to bring the de-

sign within the cost range of the others.

A further saving will occur to vehicle operators because of reduced travel distance and time saved on left turning movements. As a result of these factors the design selected was considered to be most desirable for the location. In general it was agreed that expensive and complex bridge construction was preferable to expensive land acquisition.

At other locations in the state, the department is planning to construct interchanges to meet the needs of traffic. Interchange types to be selected will depend upon the importance of the traffic movements involved, cost, benefits, and location. For the most part the direct-connection type will be used for major movements. Clover-leaf turns will be used where warranted. At many locations direct one-way ramps will be used to connect important streets to limited-access highways. In such cases all turning movements will take place on the minor route.

Present thinking in the department indicates that the use of channelized intersections, flow-in lanes, islands, etc., are appropriate under urban or semi-urban conditions. Interjection of these types into strictly rural areas will cause traffic violations, confusion, and accidents until such a time as the public becomes educated and more accustomed to their general use.

Study three-level structure

The department is studying a three-level separation for the intersection of the Eight Mile Road (State Trunkline 102), and Woodward Avenue (US-10) at the north limits of Detroit. Here, two heavily traveled roads, Woodward Avenue, with a traffic count of 42,772 vehicles daily, and Eight Mile Road, with a count of 25,978 vehicles daily, will be separated by carrying through traffic on Woodward Avenue over the existing intersection, and the Eight Mile Road under the existing intersection. Interchange facilities will be provided for at the existing street level.

In the light of past experience with the traffic interchange the department is of the opinion that:

(a) Simplicity of design is of primary importance.

(b) The direct connection type of road interchange for major movements is most desirable.

(c) Intricate designs create traffic confusion, and are difficult to sign adequately.

(d) Interchanges requiring excessive amount of right-of-way, even in rural areas should be avoided.

(e) Acute angle take-offs from high-speed roads interfere with smooth traffic operation.

(f) Cramped designs of insufficient dimensions create congestion.

Improved Sewer Inlets for Cincinnati

"What is the best design for sewer inlets on streets having a relatively high degree of grade?"

To answer this question, the city engineers of Cincinnati, Ohio, have conducted a series of tests over several years. Results of the tests indicate: (1) lowering inlet area increases capacity of the inlet; (2) gratings set with bars parallel to the curb, but having no transverse division ribs are the most efficient; (3) raised diagonal deflectors molded into the inlet area increase capacities of inlets; and (4) irrespective of the type used, all inlets are made more efficient by improving their pavement approach.

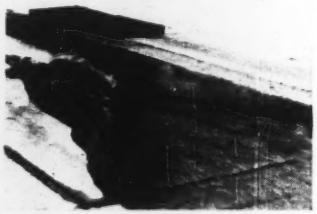
Consequently, the city has prepared two sets of detail drawings of standard inlets for both vertical and rolling curbs—one set for streets with grades from 0 to 4 percent; the other for grades exceeding 4 percent.

Grating frames are set parallel to the curb at from 2¼ to 3¼ in. below the gutter grade line, and the pavement surface is then warped in smooth planes from the normal crown of the street to the grating, over an area 4 ft. wide and about 15 ft. long, parallel to the curb.

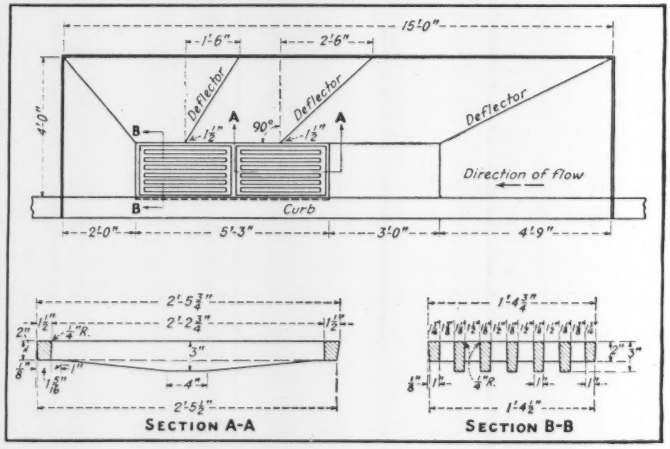
For street grades over 4 percent, deflector ridges are molded in the concrete surface to direct the storm runoff into the basin. These ridges are made diagonally to the curb, with a maximum height of 1½ in. at the edge of the grating.

Twenty new style gratings have been placed at strategic locations on heavily travelled highways to determine their performance and structural strength under actual field conditions. They are of the parallel-bar type, with no transverse cross bars.

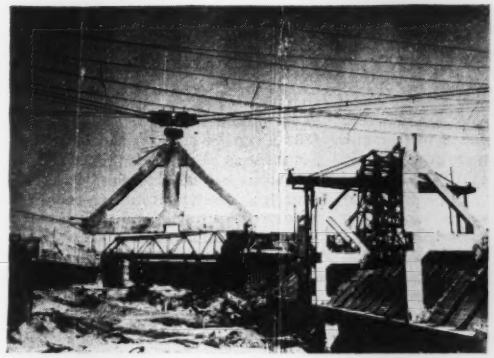
The depressed-inlet area feature, however, is standard practice and has been used in 169 inlets on streets throughout the city.

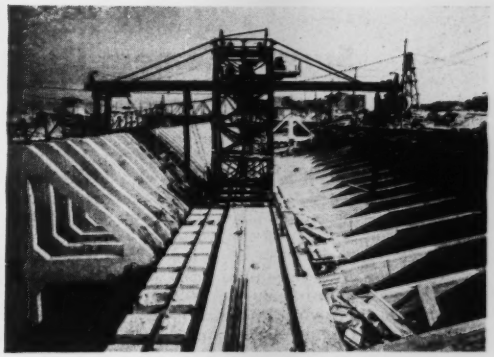


RAISED DEFLECTOR RIDGES, molded diagonally in the paved inlet area, increases gravity flow into the sewer.



STANDARD GRATING INLETS are set 2¼ to 3¼-in. below the gutter line grade, with inlet area warped accordingly. Diagonal deflector ridges are not added until street grade reaches 4 percent.





Precast Frames Solve Lock-Wall Repair Problem

GERMAN DEMOLITION of the cellular sheetpile walls of the lock entrance to the port of Dunkerque, France, was accomplished in a manner to pose a particularly difficult repair problem. It has been solved by a unique concrete structure built atop the remains of the old walls.

The lock walls, each nearly 700 ft. long, were blown from behind, with the result that the sheetpiles were bent toward the channel, the bend generally occurring at about 5 ft. below ground level.

The upper portions of the piles could not be salvaged except as scrap, but the 10 ft. of piling remaining in the ground was relatively undisturbed. It was decided to use this underground part of the old wall in the new construction, but to do so required that a structure be designed that would impose only vertical loads on this existing piling. Sufficient steel being unavailable, a design in concrete had to be developed.

There are two parts to the new lock wall construction—a massive foundation at the elevation of the top of the sheetpiling extending backward into the earth embankment and supported on timber piles, some inclined to resist horizontal forces; and a lightweight superstructure incorporating the wall proper.

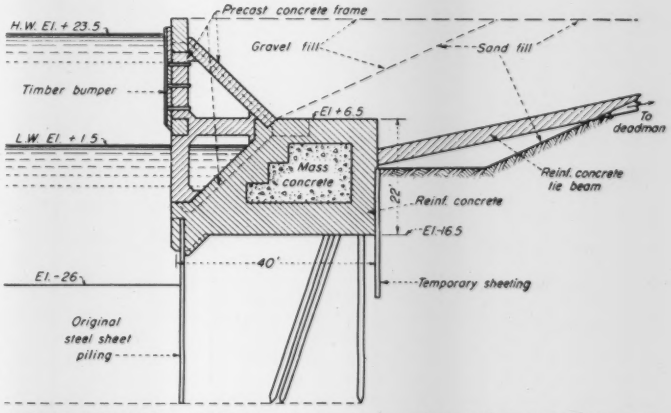
As shown in the accompanying drawing, the base is a box, trapezoidal in cross section and built with reinforced concrete walls and a center of mass concrete. It is anchored to deadmen by concrete tiebeams, which also act as struts to resist the ground pressure against the wall when the water in the lock is low. The beams have a section of 40 x 15 in., contain six 1⅜-in. rods and are spaced about 10 ft. apart.

The principal originality in the wall design rests in the precast frames that comprise the superstructure. Cast to the proportions of isosceles triangles, the frames have a base (which becomes the vertical part of the wall) of 33 ft. and legs of 18 ft. The members are 13 in. thick and either 40 or 20 in. deep.

Cableway transports frames

Cast in a yard at one side of the site, the frames were moved to their points of installation by a cableway spanning the lock. The cableway unloaded them onto a special erection traveler, which, by means of a revolving arm, upended the frames and set them into slots in the previously built foundation block. The traveler was moved along on rails on the foundation block setting the frames at the 5 ft. intervals required.

With the frames in place, concrete was poured in the slots and along the back, tieing them to the foundation block. Horizontal beams were cast on top of the frames and at the midpoint of the face to provide a monolithic framework. Final operations were to install precast slabs over the inclined back leg of the frames to furnish a deck upon which the backfill could rest. The wall has been in service for more than a year and has performed satisfactorily, according to an article in the French magazine *Travaux* upon which this account is based.



HOW LOCK WALL APPEARS with all units assembled. Old steel sheetpiling takes vertical loads at toe while tie beam and batter piles resist horizontal forces.

Survey Camera Does Its Own Notekeeping

LEVELING of third order accuracy—that of the ordinary wye level—can be done by an instrumentman with but one week's training, if he uses a topographic camera.

The time saving and the elimination of need for an experienced surveyor is due to the camera's ability to record all sights for later reading in the office. Once leveled, the instrument does the work, taking the human error out of field surveys by eliminating instrument reading and cutting down on notekeeping.

These claims come from the instrument's inventor, W. O. Bazhaw, vice president of Republic Exploration company, Tulsa, Okla. (ENR Jan. 27, 1949, p. 16).

Mr. Bazhaw calls the method geophotometric mapping and has named his invention to topographic camera. The instrument consists of a 35 mm. camera with telephoto lens and reflex housing. It is mounted on a standard transit head for use on a tripod in the field.

On each exposure made in field operations, the camera records all information required for determination of distance, direction and difference in elevation between point of instrument and rod. The instrumentman merely levels the camera, sights on the rod and snaps the picture. Though leveled for all shots, the camera takes in a 10-deg field of view in the vertical plane, thus permitting its use over fairly rugged terrain. With the camera level, the plane of the film is always parallel to that of the rod, so true distances are always recorded despite the vertical angle involved.

Stadia-rod reading for distance, rod reading for elevation, vertical and horizontal angle readings can all be eliminated. The only notes that need be recorded in the field are the station and shot numbers and differentiation between backsights and foresights.

A lens and prism system brings an image of the compass and sight card into range of the camera lens so that horizontal angle, date, frame and shot data are filmed along with the sight on the rod.

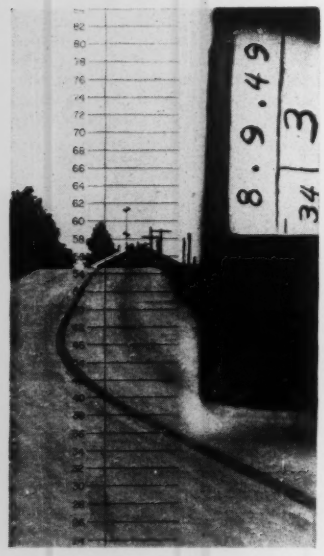
A fixed-target type rod is used with a target of translucent material chosen for its photogenic character.

For accurate results, the length of shots should not exceed ¼ mile. Distances can be read on the film to an accuracy of about 5 ft. per 1,000 ft. Azimuths are read to the nearest 15 minutes; greater accuracy could be obtained by using a vernier scale. Heat waves, an annoyance in visual work, have no effect on the camera's picture due to the short exposure time. Also, when light intensities become too weak for visual readings, time exposures can be made with good results.

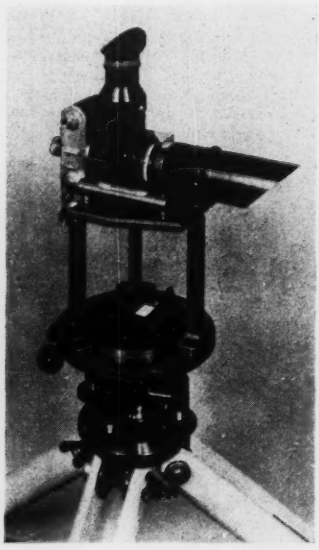
Shots read in office

Readings and measurements are all made in the office by projecting the negative of each shot onto a screen on which reference lines are scribed. Vertical angle measurements to within six seconds of arc are obtainable, and both conversion factors and distances are read from dials that actuate the projector and movable screen in this specially designed device.

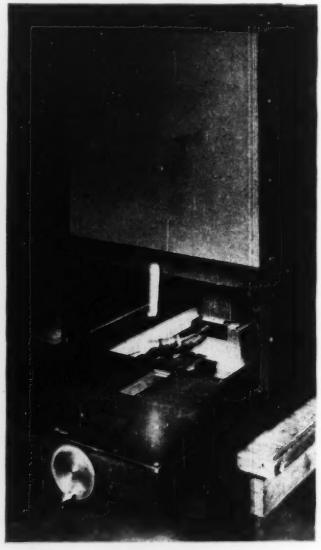
Instrumentmen with no prior surveying training have been instructed in one week's time to record satisfactorily with the topographic camera all information necessary for running and rerunning of traverses at any later time.



A TYPICAL SHOT shows rod on mil scale from which distances and elevations are read. Line 50 is horizontal; the lens ranges 5 deg. above and below.



TOPOGRAPHIC CAMERA needs only levelling, sighting and snapping—no reading in field. Office technicians can take off needed data.



OFFICE PROJECTOR facilitates reading negatives of field shots for distance, elevation and direction data. Traverses can be checked on office screen.

Let's Sell Water

Farley Gannett
President Gannett Fleming Corddry and Carpenter, Inc.
Harrisburg, Pa.

SUPPOSE YOUR GROCER, butcher or tailor supplied your family with food and clothing for a fixed sum of money per year, based not on the amount or value of the produce, but on number of rooms in your house or number of its inhabitants. The grocer, butcher and tailor wouldn't stay in business—long.

But that's the way most of the water is sold to householders in New York, Philadelphia, Chicago and many other cities.

The great majority of municipal water consumers are supplied by city-owned and -operated plants; only a small percent are served by private water companies. Perhaps that is part of the reason for the lack of progressiveness in the waterworks business.

The waterworks business has not changed much of its own accord within the last fifty years and has done little to develop new methods of obtaining and selling its product.

Few new waterworks developments

Neither water companies nor city water departments had anything to do with developments in artificial rain making. Farmer organizations and meteorologists are responsible for what's been done in that direction. Yet nobody is more vitally interested in rainfall than waterworks engineers and managers.

Electric-driven equipment has been adopted widely for pumping water. But it has come into use largely because power companies—despite the waterworks men—forced its adoption by powerful sales effort.

The news a few years ago that an engineer had recommended Baltimore's purified sewage be used for industrial cooling water at a steel plant, came as a sensational novelty to waterworks circles. It was really something new. But it was originated by a college professor, not a waterworks operator or owner.

Another new idea was developed in Louisville, Ky.—but not by waterworks men. Whiskey distillers did it. Distilleries use well supplies because cold water is needed. But in this case continued pumping of their wells was lowering groundwater level and depleting supply. At their own suggestion, the distilleries are now using city water in winter when it is cold, allowing wells to rest and groundwater level to build up during wintertime months.

One of the very few—and noteworthy cases—in this otherwise drab picture of lack of salesmanship in the waterworks industry is the work of the "Industrial Committee of Savannah, Inc.," Georgia. This non-profit organization is out to sell water. A supply of some 40 mgd. has been developed. It is being offered for sale to industries as an inducement to locate in Savannah. This is, of course, not truly a selling effort by waterworks men but a water-sales campaign to induce industrial growth in the community.

What the waterworks industry needs is a complete reorientation of its basic thinking.

It must be realized that a waterworks need not be a penny-pinching, almost grudging operation to supply a necessary service with the least possible cost and investment. Many municipal waterworks systems have turned in small but steady profits for many years. Why shouldn't they, then, be operated on a businesslike basis with an eye toward developing greater sources and greater markets—and greater profits?

Examples of the lack of common business practices are so numerous that only a few need be quoted here. For instance:

Rates at which water is sold show no long-term downward trend similar to that of electric rates. Electric rates have gone down because ways were found to increase consumption and decrease production cost.

Little has been done to develop new uses for water. Most waterworks operators try to reduce water consumption instead of to increase it. Few, if any, water works sell appliances as do electric power and gas utilities.

Waterworks men don't sell

The chief lack is salesmanship. This is undoubtedly due to the desire *not to sell* water. Don't managements know that the more of a product that is sold, the cheaper the price?

Waterworks operators wait for consumers to come to the office and beg for service. If they have to spend a few dollars to serve the customer, there is much to-do about it.

Instead of being horrified at the thought of selling more water, waterworks men—who have a valuable product to sell—should try to sell it.

When government housing developments were being scattered over the country, it was not waterworks men who tried to get these developments in their towns. It was local businessmen who wanted to sell goods.

Seldom does one ever hear of a water company or water department helping develop new uses for water or taking an active part in bringing new industries to a town to increase water consumption. Usually the water official's attitude is: "We can't take care of them. It will mean more filters, more pumps, another reservoir! That's awful!"

Many operators claim they can't get enough water to warrant a selling campaign. What they mean is: There is no more water obtainable at prices comparable to what they now pay to get it.

For example, in a Caribbean city inhabitants were drinking highly saline water because fresh water wells were pumped so hard that sea water was sucked up with fresh water. There just wasn't any fresh water—so the water department thought. U. S. consulting engineers and London bankers are now planning a plant to provide ample fresh water, but the cost will be more than $1.00 per 1,000 gallons. It can be done—water can be found and consumers will be satisfied to pay for it at a price which would make the average U. S. waterworks operator gasp.

Air conditioning—a bugaboo

Air conditioning is increasing water consumption. But what are waterworks officials doing about it? Far from helping air-conditioning salesmen sell their machines, they worry about the great volume of water that will be consumed. "Where are we going to get it? How much is it going to cost us?" They ought to be out pushing sale of air-conditioning machines and not worrying for fear water-using, air-conditioning apparatus will be installed in the town.

At a Four-States Section of the American Water Works Association meeting held in Philadelphia, the tone was fear of the use of so much water

for air conditioning. Here is a quotation from Water Works Engineering's description of this subject:

"Serious effects on some of our water supplies are likely in the near future if protective means are not taken to guard against uncontrolled use of water for the air conditioning demands that are sure to come in the next few years."

In the same magazine, an article states that the AWWA Virginia Section passed a resolution stating that "No water utility should supply water from the public distribution system for any new additional or enlarged refrigeration in a rate in excess of 0.05 gpm. per ton of refrigeration being enlarged or installed."

The AWWA Air Conditioning Committee suggested, among other things in their June 1949 report, that, when applications are made for water for air-conditioning installations, applicants be requested to investigate air-cooled equipment before buying water-cooled machines. Can you imagine a cast-iron pipe company suggesting to an inquiring purchaser that he investigate reinforced concrete pipe before deciding to buy cast iron?

It is realized that water for air-conditioning equipment is needed during the summer peak-consumption period. For this reason—a peak load with a low-load factor—the price should be high. Then let air conditioners consume all they want, the more the better—and the greater the profit.

Lawn sprinkling is another peak-load builder. How many waterworks charge more for such peak-load consumption?

Many power companies insert fuel clauses in their rate schedules which provide increased or decreased electric rates as coal price goes up or down. Why shouldn't water companies include sliding scales in their rate schedules so that their rates could automatically go up or down with price of coal, electricity or purchased water. Many rate cases would be saved if sliding scales were in effect.

Electric and gas companies have developed sales organizations to sell appliances which use their product. This is done to expand their sales of electricity and gas. Has anyone ever heard of a waterworks doing this?

Water is more important to us all than gas, electricity, or telephone. But many water plants are operated in a hand-to-mouth manner, are not forward looking on a broad horizon, and charge low rates that hardly get by.

Telephone companies spend over a billion a year to keep up with demand. The electric industry has a building program to cost 8 billion dollars in five years, to get and keep capacity 15 percent ahead of demand.

Aggressiveness needed

When waterworks men modernize their methods of doing business to correspond with its importance; when they get out and try to sell water, when they enter into the spirit of the growing community in which they do business, perhaps then we may see many changes in plants and physical methods of obtaining and supplying water and of selling it. Think about this: New York, Philadelphia and Chicago sell most of their water to domestic consumers without measuring amounts customers use. What would happen if meat and eggs and clothes and electricity, were sold that way?

Advance copies of this article have been sent to a number of waterworks officials with requests for brief pro-and-con statements on it. These reactions will be published soon.

West Coast ASTM Discusses Pozzolan

Every aspect of the use of pozzolanic materials in mortars and concrete was discussed in a nine-paper symposium at the first Pacific Area National Meeting of the American Society for Testing Materials, at San Francisco. R. F. Blanks, U. S. Bureau of Reclamation, Denver, Colo., was chairman.

R. E. Davis, University of California, opened the meeting with a definition of pozzolan as "a siliceous material which, while in itself possessing no cementitious value, will in finely divided form and in the presence of moisture, react chemically with calcium hydroxide at ordinary temperatures to form compounds possessing cementitious properties."

How 20 percent by weight of cement was replaced by a calcine reactive siliceous material for the intake and spillway structure at Davis Dam, was described by H. S. Meissner, engineer, U. S. Bureau of Reclamation, Denver He further discussed the use of other pozzolans at Arrowrock (going back a good many years), Bonneville, Friant, Altus, and Hungry Horse dams, as a cement replacement to reduce cost. (Mr. Blanks said that on Hungry Horse Dam there will be a saving of $2,000,000 in the cost of cement alone.)

Prof. C. H. Scholer, Kansas State College, who said that no chemical analysis will give the effectiveness of any particular pozzolan, proposed a test procedure that will give definite structural results within 90 days. In this regard, a paper by W. T. Moran and J. L. Gilliland, U. S. Bureau of Reclamation, Denver, Colo. (read by Mr. Meissner), summarized the various methods used to determine pozzolanic activity.

In general, the panel indicated that addition of pozzolanic materials is useful in many specific cases. Further, that pozzolanic materials differ greatly in their reaction with different cements and different aggregates. No conclusive tests are yet available to determine the suitability of various pozzolans for specific purposes and much study is needed on this particular subject.

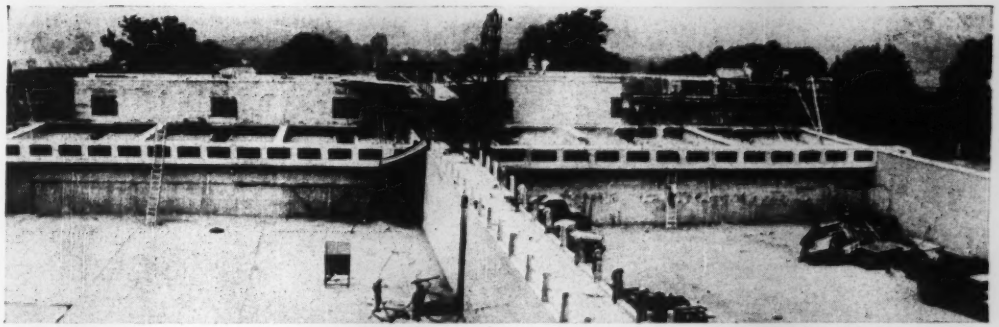
Many sessions and papers

The five-day meeting included sessions on soils, bituminous paving mixtures, ceramic and concrete products, concrete, paint, wood and subjects in other fields of engineering. More than 700 were registered, including at least 100 from eastern points.

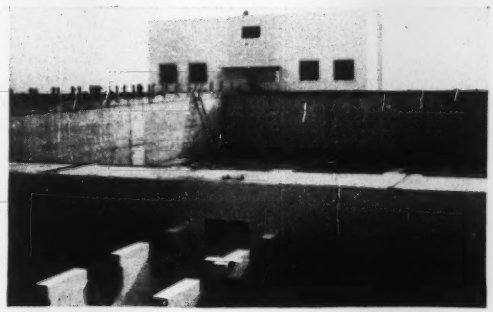
Considerable discussion followed a paper by F. H. Jackson, U. S. Bureau of Public Roads, Washington, D. C., who reported on some long-time studies of concrete. He said that as far as durability to freezing and thawing and salt action are concerned there is no difference between type I and type II cement. Air entraining, according to the studies, does prevent surface scaling due to salt action.

Discussing Mr. Jackson's paper, Bailey Tremper, State of Washington Highway Department, reported that, other things being equal, type II cement should be used because of the possibility of greater durability.

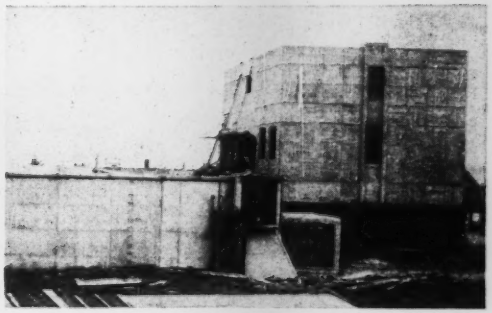
Research work at the Forest Products Laboratory on glued-laminated wood construction was reviewed by Alan D. Freas, engineer, at the laboratory. This research has been under way since 1934. (It resulted in the publication in 1939 of the U. S. Department of Agriculture Bulletin No. 691, "The Glued-Laminated Wooden Arch.") Subsequent research, according to Freas, is being compiled in a manuscript presenting recommendations of the laboratory with respect to the design of glued-laminated construction. This is expected to be published soon by the U. S. Department of Agriculture.



COMPLETION of these two sedimentation basins will be followed by construction of filter building and sand filters.



PERFORATED BAFFLE (right rear wall) distributes flow through the sedimentation basin. Plant is designed for expansion to 75-mgd. capacity as indicated by inlet flumes between head house and sedimentation basin.



Alternating direction of square form panels provides interesting architectural effect on the combined head house and chemical storage building.

Newest West Coast Water Plant Will Serve Eugene, Ore.

A 25-MGD. rapid-sand water filtration plant, the newest on the West Coast, will go into service next summer for Eugene, Ore. The plant will remove an infrequent turbidity from the raw supply as taken from the McKenzie River some six miles east of town.

Known as the Hayden Bridge Filtration Plant, the plant layout emphasizes a straigh line flow. A design feature: perforated baffles that serve as inlets to each sedimentation basin and insure a maximum of uniformity of flow throughout the settling basin.

The plant is located on a hill close to the water system's raw water pumping plant on the McKenzie River. Water will be pumped to the new filter plant 150 ft. above the river and it will flow by gravity through the plant.

Water level in the clear well at the plant is slightly lower than the operating level of the distribution reservoirs in Eugene. This fact and the friction factor in the 6 mi. of 45-in. supply line make it necessary to pump the filtered water. Pumps for this purpose will be placed in the pipe gallery of the filter building.

At present the maximum demand for water is 16½ mgd. and this is taxing the existing filter plant. Because the municipal electric utility has occupied the space originally allocated to filter plant expansion, the new plant is being built near the source of supply where there is ample room for expansion.

Room for expansion

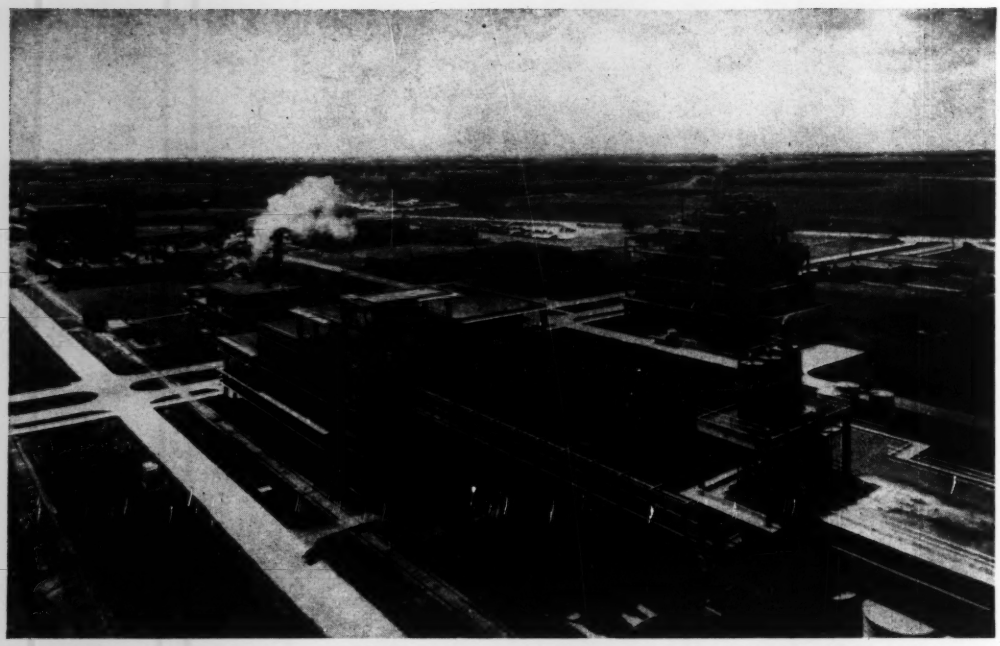
It is expected that four more 12.5-mgd. units will be built when and as the demand justifies the additional installations.

Chemicals to be used will be aluminum sulphate, hydrated lime and chlorine. These may be trucked from city to plant or may be delivered by rail to a spur track only ½ mi. from the plant.

The plant as now being built consists of two parallel units each of which includes chemical dosing and mixing facilities, a 95x190-ft. sedimentation tank and three 4-mgd. capacity rapid-sand filters.

This plant was designed for the city of Eugene by Stevens & Koon, consulting engineers, Portland, Ore. W. J. Moore is water superintendent for the Eugene, Ore., Water and Electric Board.

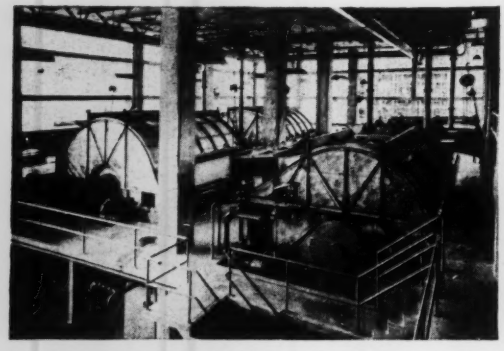
Foundation construction and excavation involving much rock was by Inter City Sand and Gravel Co. on a base bid of $87,955. Structural features are being built by Lee Hoffman, contractor, on a bid price of $376,980. Mechanical installation will be by employees of the water board under direction of its engineering staff and the consulting engineers.



OPENWORK appearance of this new refining plant in Texas is result of careful planning to integrate manufacturing processes with design considerations. Walls were left off buildings wherever possible to improve working conditions, save expense.

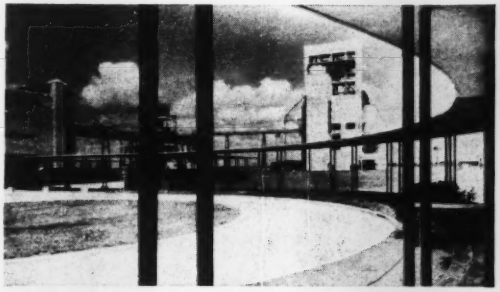
Wall-Less Plant Makes Sugar Products

THE CORN PRODUCTS REFINING CO. had a specific problem when it decided to build its new plant on a 140-acre waterfront plot in Corpus Christi, Texas: The company wanted to eliminate certain manufacturing hazards (such as dust and noxious fumes), it wanted to build the plant economically, and it wanted the plant to be architecturally pleasing. The H. K. Ferguson Co. and Corn Products Co. engineers solved the problem (and took advantage of good climatic conditions) with ten virtually wall-less, strictly functional buildings shown in these pages.

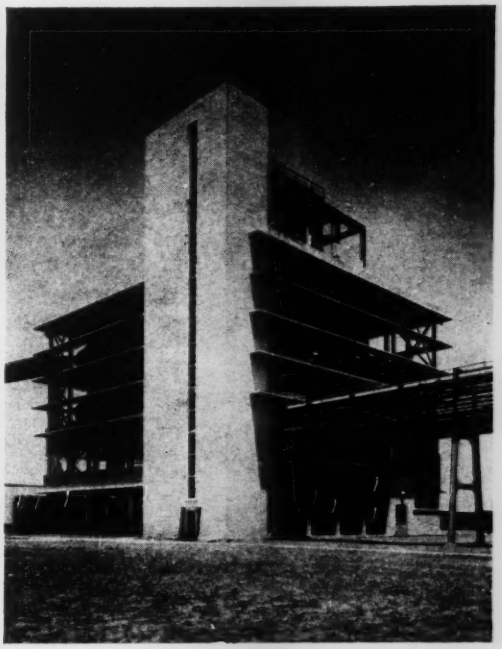


FILTER machines are hooded to permit wall-less construction. In previous plants, such machines are in enclosed buildings.

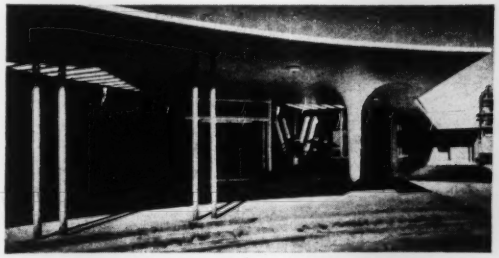
GLAZED TILE, acoustical ceilings, fluorescent lighting are utilized in the office buildings and laboratories.



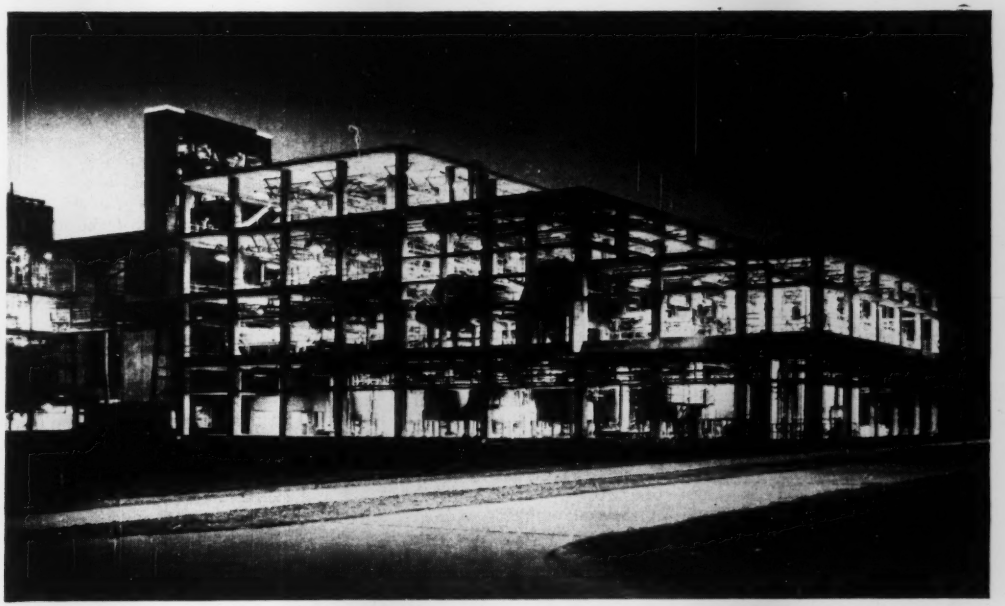
CURVED CANOPY from administration building frames Mill House (left); and a grain storage section (right). A 150,000-gal. water tank is atop the rectangular structure fronting the silos.



MACHINES ARE ENCLOSED individually, but bays are open in crystallization building. Enclosed section is stair column.



CENTER of activity at the plant is the combination laboratory-office building. Structure is completely air-conditioned.



NIGHT VIEW emphasizes open construction. Mechanical character of the refining process lessens need for shelter of workmen. Natural "air conditioning" disperses dust and noxious fumes and minimizes danger of dust explosions.

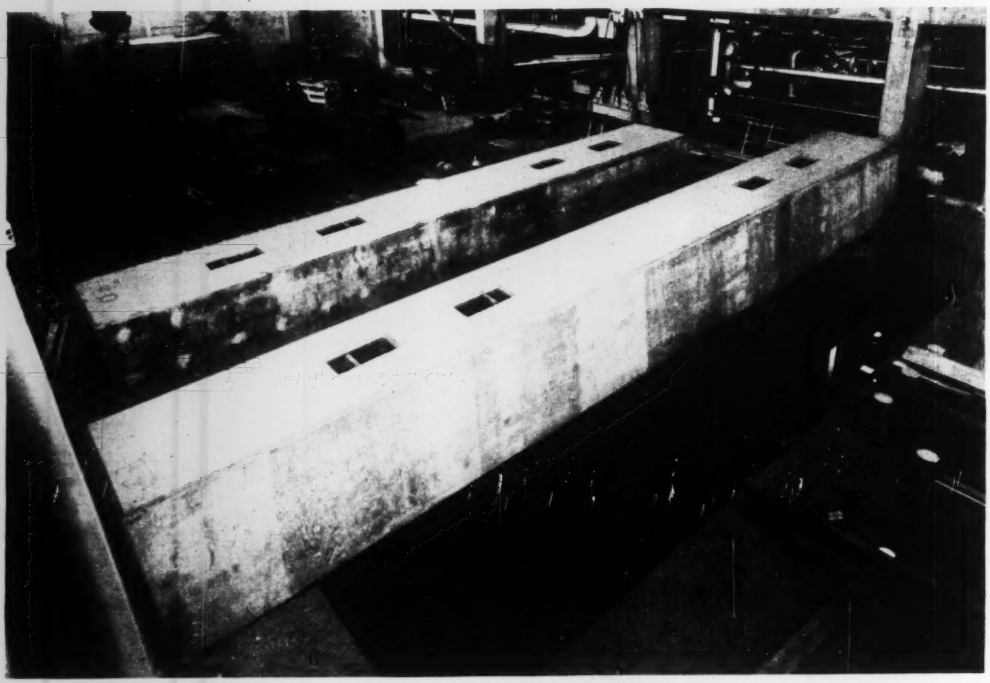


Fig. 1. WHEN NEW ATOM SMASHER is completed in this pit at the University of Chicago, single and double layers of these movable concrete beams will prevent escape of the fission products.

Giant Concrete Beams Shield Synchrocyclotron

E. I. Fiesenheiser
Structural Engineer
Chicago, Illinois

MASSIVE PRECAST CONCRETE BEAMS will shield the University of Chicago's newest nuclear research tool—a 170-in. pole, 450-million volt synchrocyclotron. Resembling giant building blocks, the movable beams will be stacked over the machine to absorb neutrons given off by atomic disintegration. The largest shielding units are 45 ft. long and weigh close to 100 tons.

The synchrocyclotron is essentially an electronic whirligig that spins ions between the poles of a powerful electromagnet until they reach extremely high velocities. The whirling ions are then deflected to bombard a target consisting of atoms to be disintegrated. Neutrons are frequently given off in this process; they have no charge, and are capable of penetrating great thicknesses of matter before being stopped.

Concrete is the most practical shielding material thus far discovered. It is comparatively low in cost and can be readily cast in the desired shapes. Accordingly, the synchrocyclotron is placed in a deep concrete pit covered with 29 concrete beams, 5 ft. deep, in single and double tiers. The beams span over the pit a maximum 39-ft. clear distance. Thick concrete walls back up their ends for additional protection.

Several problems were successfully overcome in the design and construction of the shielding system:

(1) The entire system had to be such that it could be dismantled for access to the machine and its enclosing pit. Thus, the shielding units were made as easily removable beams.

(2) The beams were to be lifted by an existing 100-ton overhead crane. By making all beams a uniform 5-ft. depth and an average 5-ft. width, the weight of the largest fell within the lifting capacity of the crane.

(3) For complete shielding, there could be no straight joints continuous through both upper and lower tiers of beams. So the sides were battered to make the upper tier overlap and shield the planes of contact between beams below. (Fig. 3). At the same time, this batter gives the beam a wedge shape that makes for friction-free withdrawal of alternate units from the tier when dismantling is necessary.

(4) A perfect fit between adjacent beams was also essential for good shielding. This demanded accurate casting—accomplished by pouring the units in plywood forms solidly back-

ed-up by previous-cast beams.

(5) High trucking rates and congested city streets would have made moving of the heavy beams costly and difficult. Therefore, they were cast within the building itself.

(6) Simplicity of construction was necessary so the beams would be completed quickly to free the building for installation of equipment. The work was made easy by using, in general, only two beam sections. All have the same width, depth and 10 on 1 batter, but half taper in at the top; half at the bottom (Fig. 3).

The beams are reinforced to carry their own dead load over the pit and any other loads which may be placed on top. Stresses during lifting are also provided for.

Each beam is lifted at four points, through steel plate anchors embedded in the concrete. The location of the lift points for the continuous elastic beam with three spans and overhanging ends is such that the four support reactions are equal. This results in easy handling and in an economical design for the anchors.

An overhead crane with two travelers (each lifting two points) handles the beams with equalizing bridle slings of 2-in. wire rope. The slings hook through the embedded anchor plates, which are set at an angle exactly coinciding with that of the slings. Permanent alignment bars between adjacent anchors maintained the correct angle and location while the beams were poured. The plates end in pockets recessed in the top of the beam so there are no projections above the concrete (Fig. 1).

Beams were cast on a special floor within the synchrocyclotron building, since the existing concrete floor was not level enough for the casting accuracy desired. The temporary floor was of plywood over 2-in. planks on shimmed timber stringers. Panels of ¾-in. paraffin-treated plywood backed by studs and wales made up the side and end forms for the first beams. Heavy timber horses and form ties practically eliminated form deflection.

The longest beams were poured first. Extreme care was taken to make them perfect so they could serve as side forms for beams poured later. Completed units were simply set the correct distance apart, the sides were lined with plywood, and concrete poured between to make a new beam. The beams were easily stripped by lifting them from the mold. Fig. 3 shows the casting sequence.

Concrete was a low-slump mix made with ordinary Type I cement, and vibrated for high density. Cylinder tests from the first pour averaged 3,940 psi. Curing was by sprayed compound.

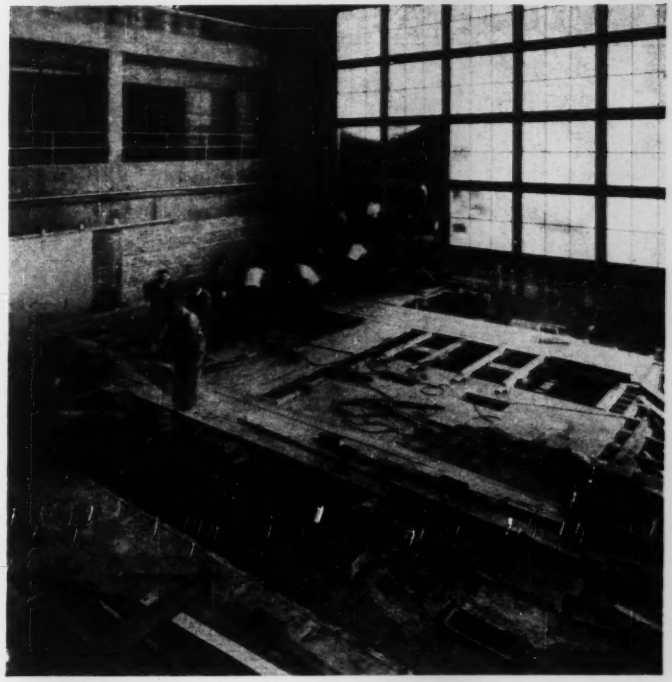


Fig. 2. BEAMS ARE CAST inside one end of the synchrocyclotron building. Despite limited space and a small crew, at least two beams are completed weekly.

Designs and specifications for the shielding were prepared by the writer, who also is supervising construction as consultant structural engineer for the University of Chicago. Dr. H. L. Anderson is project director for the building of the synchrocyclotron for the university. The cost of the project is supported in part by the Office of Naval Research and the U. S. Atomic Energy Commission. The contractor for the work here described is Paul Schwendener, Chicago. John Mattson is job foreman.

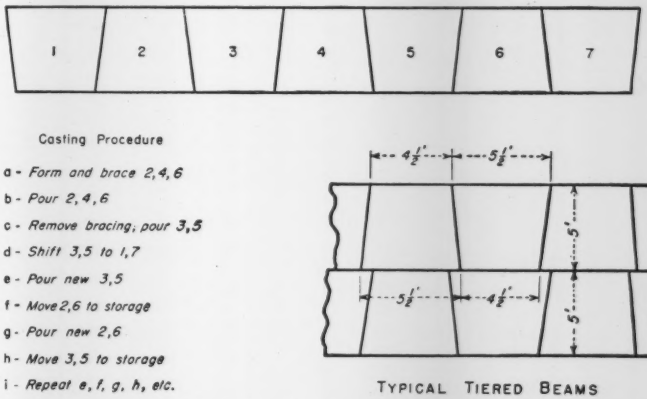


Fig. 3. CASTING SEQUENCE utilizes previously poured beams as massive bracing. Beam in position 4 is not moved until all units have been cast; those at 1 and 7 are moved slightly to free 2 and 6. In use, upper-tier beams shield lower joints.

DEVELOPMENTS ABROAD

NEW ROMAN SUBWAY—Italian and foreign newspaper men are shown going into the central station entrance of a new subway line under construction in Rome. (ENR July 29, 1948, p. 5) The line, 6½ miles long, will link the central station with sections of the city now without subway service. It also will connect with the railway to Ostia Lido, the famous bathing place near the mouth of the Tiber. The subway was about 60 percent completed when work was interrupted by the war. It started again in 1946. Another $5,000,000 will be needed to finish the project. It will have a capacity of 40,000 passengers an hour in both directions. Wide World Photo.

Water Supply

Australia—The Melbourne & Metropolitan Board of Works has in hand a ten-year program to increase its water supply storage. Since 1939 the consumption of water in the metropolitan area has increased by 25 percent. Work started in 1946 on 23 miles of 68-in. steel pipeline from the upper reaches of the Yarra River to augment the flow into the Silvan Reservoir by 75 mgd. Because of labor and material shortages this pipeline will not be completed before 1951 or 1952. Several sections of the pipe must be laid through tunnels.

The next step will be to increase the capacity to distribute the water to the metropolitan service reservoirs. Then the present storages will be supplemented by the construction of an earth and rock-fill dam on the Upper Yarra. It will impound 30,000 million gal., half again as much as all present storages combined. Testing of the site and excavation of the diversion tunnel are under way.

Puerto Rico—The Puerto Rico Aqueduct Authority (formerly Water Supply and Sewer Service) has submitted to the planning board a program covering new constructions and improvements of water supply systems in 27 municipalities of the island to be carried out during the fiscal year 1949-50, first of the five-year program now being planned.

The total outlay of funds will be $3,725,000.

Know-How

As a result of licenses granted abroad by Billner Vacuum Concrete, S. A., foreign affiliate of Vacuum Concrete, Inc., Philadelphia, several important jobs are under way using this wholly American process. One of the most important is in Cairo, Egypt, where 75 four-story apartment buildings are being built entirely of precast members. Both vacuum forms and vacuum lifting devices are being used. A project of similar type is being planned for Antwerp, Belgium. In Germany, vacuum concrete is being used on the spillway of the Isar River dam near Landshut, Bavaria. The French licensee is handling a contract for 500,000 sq. yd. of precast slab for lining the Ottmarsheim Canal along the upper Rhine, and a similar job is starting in Morocco.

Tunnel

Tasmania—The Hydro-Electric Commission of Tasmania is inviting bids for the excavation of approximately two miles of tunnel including a surge shaft in connection with the Trevallyn power development project. Tunneling will be mainly through dolerite. Area of the cross section is approximately 350 sq. ft. Part of the tunnel will be concrete-lined.

Deadline date for bids is Jan. 10, 1950.

The site of the Trevallyn project is between the South Esk and Tamar rivers, within three miles of Launceston, Tasmania's second largest city.

Transport Briefs

Burma—The 240-mi. Ledo Road, built in wartime to link upper Burma to India is due to be reopened for general traffic in February, the government said recently.

England—The tunnels being built under the Tyne River between Jarrow and Howdon have been holed through and will be open for use within another year. First to be completed will be tunnels for use by pedestrian and cyclist traffic—a full-size vehicular traffic bore is also under way.

Australia—Australian engineers, now pushing a $40,000,000 airport expansion program, are concentrating particularly on converting Kingsford Smith airport at Mascot, N. S. W., into a terminal capable of handling the largest aircraft in the world under all weather conditions.

Brazil—The Senate now has before it a bill that would authorize private construction and operation of a vehicular tunnel to link Rio de Janeiro with Niteroi. Rough estimates place cost of the facility at $45-75,000,000, and difficulties of construction make many engineers doubt feasibility. Rio harbor reaches a depth of as much as 130 ft. at some points along the proposed route.

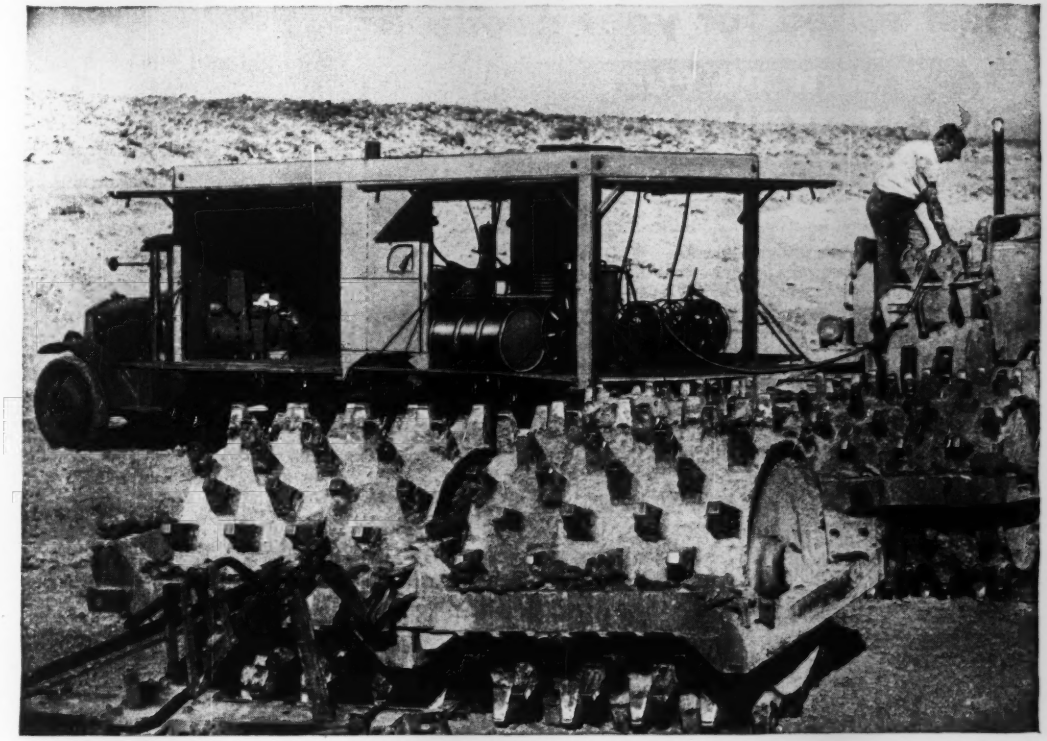
Venezuela—After nearly two years of work and investment of $600,000, the Mene Grande Oil Co. has completed an asphalt-surfaced highway from the Lake Maracaibo port of La Dificultad, to the interior oil field of Poco. The road is 30 kilometers long, and will be passable in all seasons.

Puerto Rico—Aiming at reducing unemployment in the off-season in sugar areas, the insular government has started a $2,533,000 program of rural road construction throughout the island.

Mexico—Surveys have started as a preliminary to the long-projected Durango-Mazatlan railroad. Mexican National Railways expect to spend about $17,000,000 on the 130-mile stretch of track that would provide an ocean outlet for produce of the Durango area.

(*Continued on page 48*)

Slash Costly "Time Out" For Lubrication Up To ⅓ . . .



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DEVELOPMENTS ABROAD

(*Continued from page 46*)

Irrigation and Power

Israel—John S. Cotton, consulting engineer of San Anselmo, Calif., has been engaged by the state of Israel to prepare a master plan and designs for irrigation and power development. This involves conducting the waters of the Jordan River from the northern boundary to the southern end of the country for irrigation, and conducting Mediterranean sea water to the Dead Sea, which is about 1300 ft. lower than the Mediterranean, for the generation of power. The sea water, after generating power, will be allowed to evaporate.

Highways

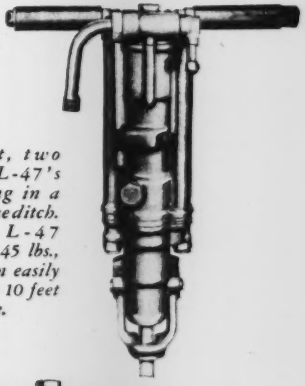
Bolivia—A credit to the Bolivian government to finance two-thirds of the cost of completing the Cochabamba Santa Cruz highway up to a maximum of $16 million has been authorized by the Export-Import Bank.

Construction of the highway is a major engineering and construction job involving 300 miles of previously unsurveyed territory and the crossing of several of the main ranges of the Andes. Detailed construction plans for the remainder of the highway and estimates of the cost of remaining construction were completed last year by the United States Public Roads Administration and arrangements have been made for financing the work from funds supplied by the Bolivian government, together with supplemental Export-Import Bank credit.

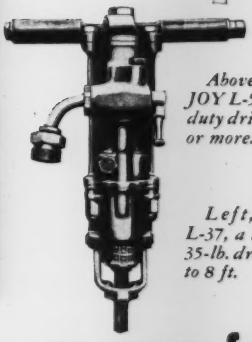
Under the terms of the credit the Bolivian Development Corporation will enter into contracts with a United States engineering firm and a United States construction firm to supervise and to execute the remaining construction work.

Mexico—The Mexican government's ministry of Communications and Public Works has announced that about $3,000,000 will be spent this fiscal year to complete construction of the highway across the Isthmus of Tehuantepec, from Coatzacoalcos to Salinas Cruz. This is where the Atlantic and Pacific coasts are the shortest distances apart.

Puerto Rico—Governor Luis Muñoz Marin approved plans for the construction of several urban thoroughfares and bridges near San Juan, costing $14,000,000, to be carried out during the next eight years. These projects form part of the master plan approved by the planning board.



Left, two JOY L-47's working in a pipe-line ditch. The L-47 weighs 45 lbs., and can easily drill to 10 feet or more.



Above, the 55-lb. JOY L-57, for heavy-duty drilling to 15 ft. or more.

Left, the JOY L-37, a hard-hitting 35-lb. drill for depths to 8 ft.

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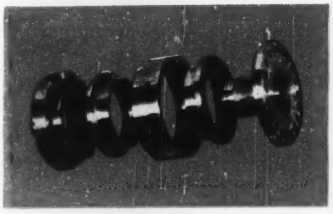

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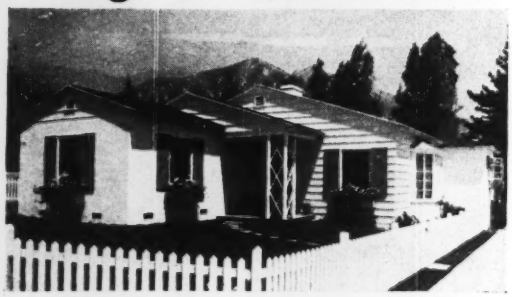

Truscon Double-Hung Steel Windows in Typical Residence

Truscon Double-Hung Steel Windows in Typical River Boat Installation — the William Clark

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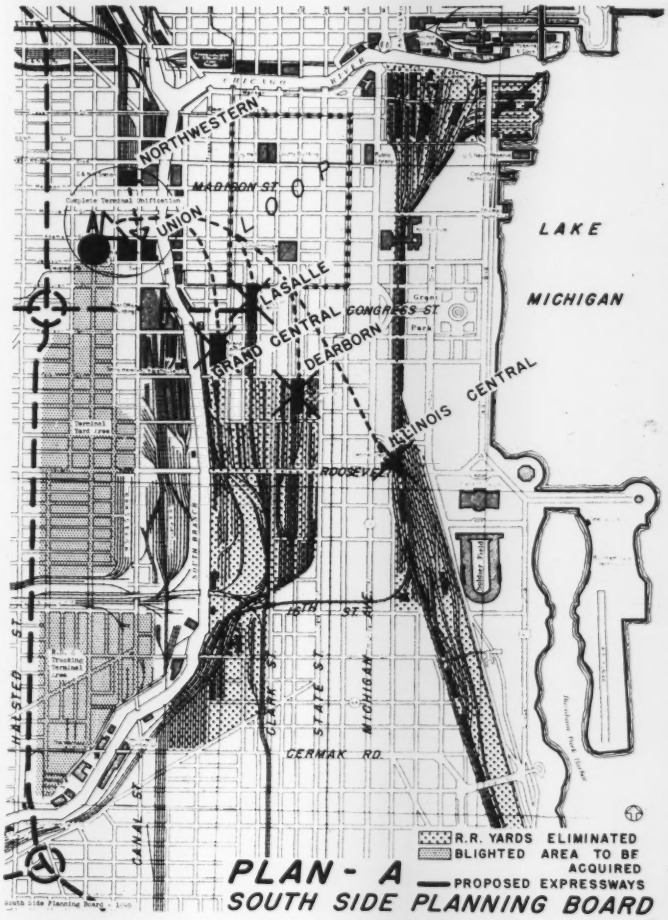

Chicago gets new proposal to consolidate terminals

Another solution for one of Chicago's old problems, consolidation of four railroad stations south of the Loop business district, has been proposed by the South Side Planning Board, of which Henry T. Heald, president of the Illinois Institute of Technology, is chairman.

This plan would merge the Illinois Central, Dearborn, LaSalle and Grand Central stations into a new terminal just west of the Union Station and within three blocks of the Northwestern Station. Wilford G. Winholtz, executive director of the board, estimates the cost of this relocation at $300 million.

Two other consolidation schemes are under discussion. The one sponsored by the Chicago Plan Commission would combine the Dearborn, LaSalle and Grand Central stations on a new site at the southwest end of the Loop. Its cost is placed at $200 million. The Illinois Central station would remain where it is on the Lake Front. Winholtz pointed out that this plan does not provide full consolidation.

The second proposal, supported by the Illinois Central, would consolidate the four stations on a site near its present station. The cost of this plan is estimated at $100 million.

All three plans would eliminate the bottleneck of railroad yards south of the Loop, permitting expansion of the business district. Winholtz criticized the concentration of railroad facilities on the lake shore as preventing the future development of recreational areas. In his opinion, the Planning Board's scheme not only would clear up the bottleneck, but would realize the city's potential $1,000 million asset in a light manufacturing and apartment development area south of the Loop. Other advantages claimed are:

Complete terminal unification; reclamation of the lake shore for parks and recreation; possible extension of the commercial district southward; potential development of high-density apartments close to the Loop, and integration of the rail passenger center with the proposed Civic Center.

Architect Nathanial A. Owings, chairman of the Plan Commission, has announced that the city may take legal steps to force the railroads to construct a consolidated terminal. The railroads have claimed that they do not have the finances to undertake such a huge reorganization of facilities.

The map herewith shows how the four railroad terminals might be consolidated in one new structure west of the present Union Station.

To Help Camden Traffic

The construction of New Jersey State Highway Route 151 will give Camden free traffic flow into its business center. The State Highway Department is paying Camden $290,000 for municipally-owned land needed for rights-of-way. This sum represents a tax rate credit equal to approximately 21¢ per $100 valuation in Camden's 1949 tax rate.

This modern thoroughfare, which will overpass the Route 25-Admiral Wilson Boulevard approach to the Camden-Philadelphia Bridge, is described as a great new safety factor as well as a major improvement.

Eventually it will cost $1,250,000. The first section contract has been awarded to the low bidder, A. J. Cunningham & Sons, of Trenton, at $246,676.

Pedestrian Control

The new Traffic Commission of St. Louis, Mo., will undertake measures to obtain some regulation of pedestrian traffic and to get the cooperation of aldermen in reducing the number of traffic stop signals. The commission believes that regulation of pedestrian traffic in congested areas is necessary, as many downtown accidents are a result of disregard of traffic officers' signals by pedestrians. Charles G. Gonter, traffic commissioner, called attention to the fact that other cities

(Continued on page 53)

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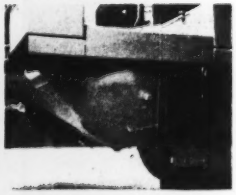

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MUNICIPAL AFFAIRS

(*Continued from page 51*)

have successfully inaugurated pedestrian traffic control.

A city-wide study of all stop signs and traffic signals will be made. The commission will ask members of the board of aldermen to refer to the commission requests for installation of stop signs before introducing bill for the installations.

Meters Pay for Lot

Bloomington, Ind., plans to establish, from parking meter funds, an off street parking space for several hundred automobiles which habitually are parked downtown.

Mayor T. L. Lemon said $10,000 is being put aside annually from the meter receipts to build a pool for purchase of a centrally-located lot.

Off Street Parking

A 40-page illustrated survey of off street parking and what is being done by private enterprise to solve today's parking problems has been made by the Committee on Urban Transportation of the Chamber of Commerce of the United States, Washington, D. C.

The survey shows examples of how private enterprise throughout the country is meeting the problem. The purpose is to encourage others to take the initiative in solving the problem in their own communities.

St. Louis Airport

Plans for a metropolitan airport near downtown St. Louis, Mo., advanced another step when the St. Clair County Board of Supervisors appointed a five-man commission to draft zoning laws to limit the height of buildings which may be erected around Parks Metropolitan Airport at Cahokia, Ill.

The St. Louis Municipal Airport Commission requested zoning legislation to protect the airport because the city of St. Louis favors this site.

Municipal Briefs

The Public Housing Administration has approved a 1,000-unit low-rent public-housing project for Minneapolis, Minn., to the extent of a $250,000 loan to finance planning a 2-year program.

More than 300 acres of congested slum-dwelling area in the center of Norfolk, Va., will be cleared and rebuilt within seven years if a program now being considered by the Norfolk Redevelopment and Housing Authority is carried out. The cost is estimated at about $60,000,000.

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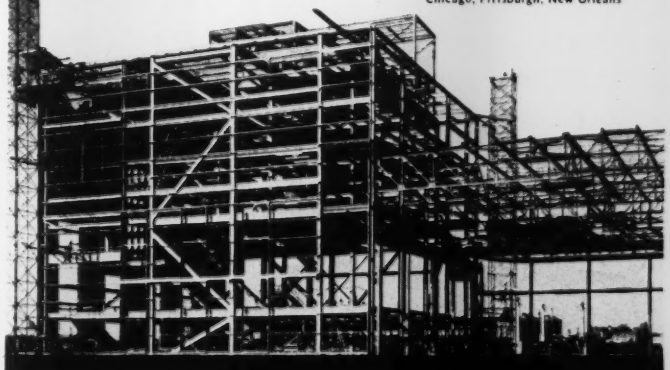

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Nothing else moves earth quite like a Sauerman Scraper or Cableway Excavator. It saves you dollars and headaches on long range material handling jobs with its simple operation — low fuel requirements—small maintenance charges—flexibility—sturdiness and dependability.

Tough ground conditions don't stop a Sauerman Machine. It will dig and haul anywhere—on a hillside, in muck, deep under water. Completely controlled by one easily trained man. Gasoline, electric or Diesel power. There's a wide range of sizes and models to meet every requirement.

Put your problem up to us.

SAUERMAN BROS., INC.

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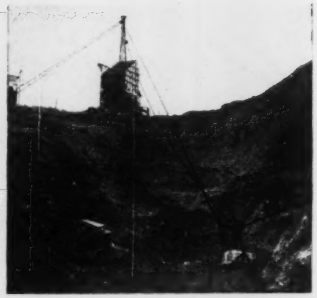

Missouri lead deposit 145 ft. deep is mined by the open pit method, using a Sauerman Stackline Cableway Excavator for the main duty. Operating a 1½ cu. yd. bucket on a 700 ft. span, the Sauerman machine digs about 100 tons of soft ore an hour, delivering the ore to a 300-ton storage bin.

Here is a small Sauerman Power Drag Scraper delivering gravel to a hopper that feeds to a crusher. The scraper, operated by one man from a central station as shown in the picture, swings in a wide arc to dig a large, deep pit.

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RUGGED -- DEPENDABLE ENGINES FOR HEAVY-DUTY LOADS

- FUELS — Gasoline; Kerosene; Gas-Gasoline
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- HEAVY FLYWHEEL — Smooths Varying Loads
- EASY SERVICING — 80% Interchangeability of Parts

This 2 cylinder water-cooled engine (Model CWR-66) develops 10 to 15 H.P. at speeds of 1200 to 2200 R.P.M. Other models available: Air-cooled, 4 to 7 or 5 to 8 H.P.; Water-cooled, 10 to 15 or 22 to 32 H.P. Let us know your specific needs.

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SELF-PRIMING PUMPS 1½" to 6" 3,000 to 90,000 G.P.H.

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PAVEMENT BREAKERS 3,000 lb Drop Hammer Mounts on 1½ Ton Truck

DIAPHRAGM PUMPS 3" or 4" Single or Double 3,000 to 10,000 G.P.H.

HOISTS Single or Double Drum 1,000 to 6,000 lb. Line Pull

ENGINES Air-cooled, 4 to 8 H.P. Water-cooled, 10 to 32 H.P.

NOVO ENGINE COMPANY, LANSING, MICH.

FIELD AND OFFICE

SIMPLE—An easy way of placing sheet board ceilings has been devised by Ernest J. Reed, Salem, Ore. He has invented a device whereby boards may be raised under joists merely by turning a crank on the scaffold. The apparatus may also be used for holding plaster, as shown in the accompanying photograph. Equipment is collapsible and when folded can be carried by one man, or stored in a small space. Carrying sheet boards, plaster or other material, the platform can be moved horizontally or vertically to meet the convenience of the worker.

Vertical Corrugated Sheets Make Effective Baffle for Lab

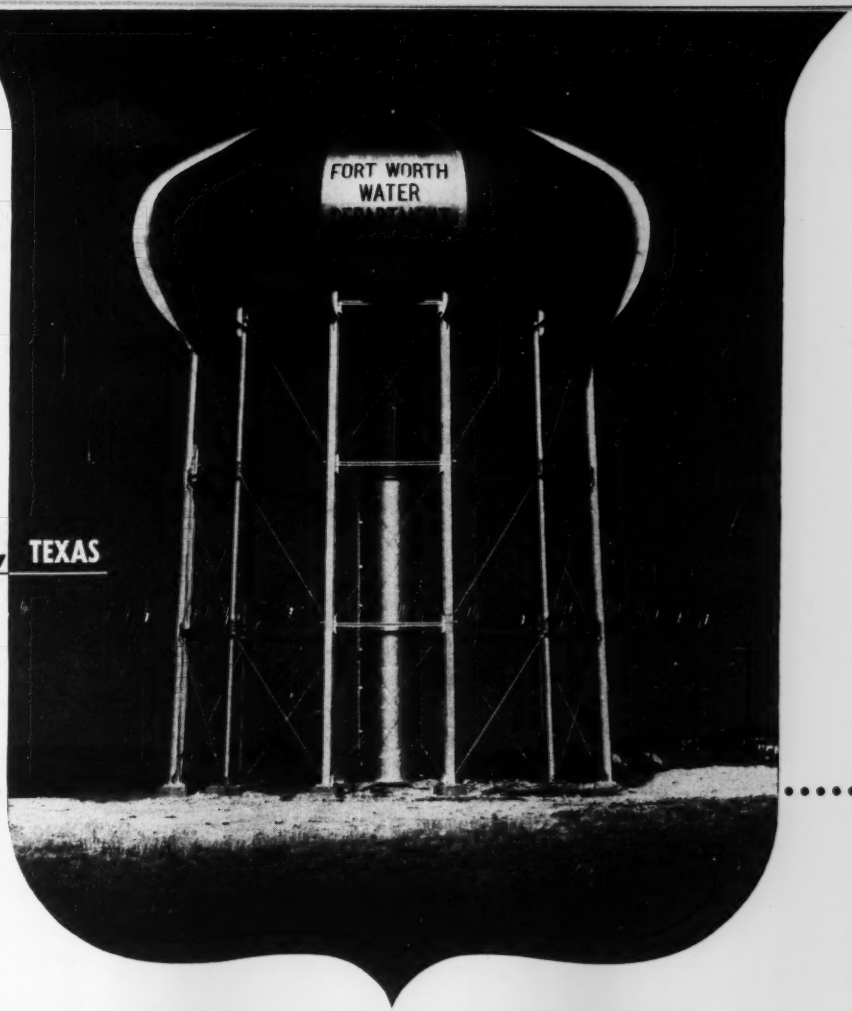
A highly effective baffle made of corrugated aluminum sheets has been constructed in the hydraulics laboratory of the Tennessee Valley Authority at Norris, Tenn.

Used in testing and calibration work, this baffle is said to successfully satisfy all functions required of such a structure: It is of simple construction, gives maximum redistribution of velocities—a nearly uniform downstream velocity—and causes a minimum head loss. It has been found successful in smoothing highly turbulent flows and has at its only apparent weakness an inability to equalize approach velocities which vary across the stream, from side to side. Usually a second baffle of another type is required to equalize such velocity differentials, if they exist.

Frames, consisting of ⅜ in. square spacer bars and suitable cross members, hold in place the standard corrugated metal sheets, which are cut lengthwise to any desirable dimension. Positioning of the corrugations along the

(Continued on page 57)

This servant
wears
a Crown
—at
FORT WORTH, TEXAS



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Elevated STEEL TANKS

New beauty . . . new efficiency in large-capacity elevated tank design by Pittsburgh-Des Moines! This handsome *Obloidal* Elevated Steel Tank stores 1,000,000 gallons of water with a head range of 25 feet. 88 feet in diameter, on an 88-foot tower, the gleaming crown of this new tank is visible new evidence of *modern water storage* for Fort Worth.

Do you have our new Elevated Steel Tank brochure?

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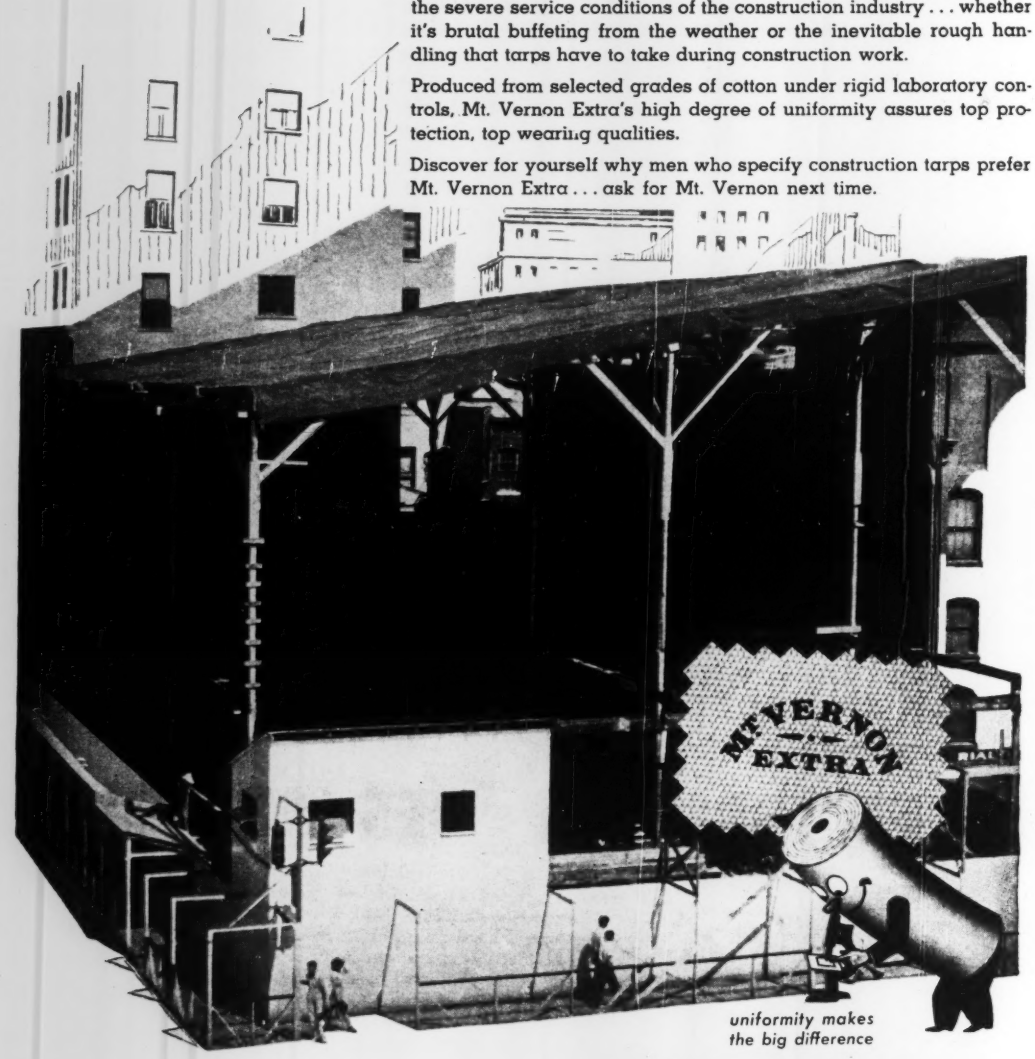
Tarps made of Mt. Vernon Extra have what it takes to stand up to the severe service conditions of the construction industry . . . whether it's brutal buffeting from the weather or the inevitable rough handling that tarps have to take during construction work.

Produced from selected grades of cotton under rigid laboratory controls, Mt. Vernon Extra's high degree of uniformity assures top protection, top wearing qualities.

Discover for yourself why men who specify construction tarps prefer Mt. Vernon Extra . . . ask for Mt. Vernon next time.



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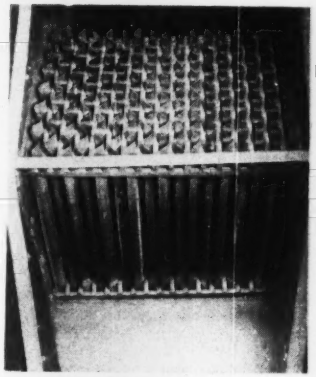


SMOOTHING OUT the turbulent flow is the job of this hydraulic-laboratory baffle.

length of the baffle is the key to its effectiveness. It is the alternate widening and narrowing of the several streams through the baffle that smooth the incoming turbulent flow and discharge it with only the smooth sine waves imposed by the corrugations. Head loss through a 16⅝ in. length of baffle commonly used in the laboratory does not exceed 0.02 ft. For water carrying a heavy silt load, it is possible to raise the entire baffle frame, permitting free passage beneath it for settling suspended matter.—Rex A. Elder, TVA Hydraulic Laboratory Section, Norris, Tenn.

Elevator Accident Cause: Carelessness

Improperly guarded hoistway and car entrances were the greatest cause of accidents in connection with elevators during 1948, according to a recent analysis of 287 mishaps that occurred with all makes and types of elevators.

The survey was completed as part of a continuing service by the Otis Elevator Co.

Of the total accidents, 161 were serious or fatal, but elevator company engineers said that 67 percent of them could have been prevented had the elevators been equipped with adequate safety devices.

Most prevalent cause of serious and fatal accidents was that people continued to open hoistway doors and fall down elevator shafts when no cars were at the landing. 33.5 percent of all the 161 serious or fatal accidents occurred in this manner. Another third of the accidents occurred at freight and passenger elevator car entrances where car gates or other safety guards were lacking.

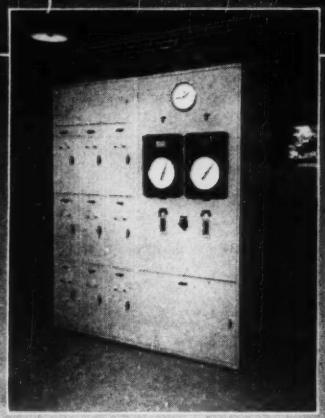
BRISTOL, CONNECTICUT

Bristol Sewage Plant

(Completed in 1949)

METCALF & EDDY
Engineers

C. M. PFENNIG
City Engineer, Bristol, Conn.



Builders-Providence equipment furnished for the Bristol Sewage Plant:

1—Chronoflo Transmitter-Indicator with Chronoflo Totalizer-Indicator-Recorder for 12" Parshall Flume.

1—30" Venturi Tube with Chronoflo Transmitter and Indicator; also Rate of Flow Controller.

This newly completed plant provides the economies of the modern high-rate trickling filter system of sewage treatment for the city of Bristol, Conn. To serve the population of 40,000, the plant is designed to handle a normal load of 3.5 m.g.d. and a maximum flow of 8 m.g.d. The necessary data on flow rates and operating conditions are furnished by Builders Venturi Meters and Chronoflo Electric Telemeters, installed by the contractor, Westcott Construction Co. under the supervision of Clarence E. Carter, resident engineer. For Bulletins describing Builders sewage works equipment, address Builders-Providence, Inc. (Division of Builders Iron Foundry), Providence 1, R. I.

BUILDERS-PROVIDENCE
Instruments

EDUCATION and RESEARCH

Atmospheric Pollution

"Cleaning up the contaminated air of cities will require more than laws and good intentions. Atmospheric pollution is primarily a technical problem, and—until we gain enough knowledge about it, progress toward cleaner air will be slow," according to Morris A. Fisher, supervisor of fine particles research at Armour Research Foundation of Illinois Institute of Technology. In a recent statement, he predicted important developments in the field because of recent research, and cited newly-discovered facts about weather and behavior of tiny particles suspended in air, along with smoke abatement facilities and careful surveys of pollution in a number of cities, as aids to future control of atmospheric pollution.

Several cities, including St. Louis and Pittsburgh, have reduced smoke by regulating the quality of solid fuels burned, he noted in an article in THE FRONTIER.

Due to the fact that industrial plants are an obvious source of pollution and accurate ways to measure their share of it have been lacking, they have often drawn more criticism than they deserve.

"Most industries are eager to consider their neighbors as well as to avoid economic losses from the discharge of foreign material into the air," he said. "Through research, industry can learn about its pollution, integrate control measures with other technical requirements, and work out economically sound methods of control, which should come about through fundamental research and orderly technical development rather than through restrictive or punitive measures."

Brick and Tile Research

The Structural Clay Products Industry Research Foundation has been established to carry on a $1,250,000 research program in brick and tile. It is supported by subscriptions from manufacturers in the United States and Canada, and will launch a long-range, industry-wide program of research in clay products, aimed at reducing the cost and improving the quality of buildings which are constructed of brick and tile.

At the initial meeting of the 18-man research board of management in Chicago recently, Ermin F. Plumb, a brick manufacturer of Streator, Ill., was elected chairman. He is also chairman of the research committee of Structural Clay Products Institute, which recommended the formation of the foundation. Vice-chairman of the new organization is Don J. Renkert, of Metropolitan Brick, Inc., Canton, Ohio. Harry C. Plummer, director of engineering and research for the institute, has been named secretary of the foundation, and Harry Weinberg, Hoboken, N. J., brickmaker, treasurer.

Organization of the foundation culminates a 3-year drive within the structural clay products industry for a coordinated research effort. A year ago, Arthur D. Little, Inc., was engaged to survey the research needs of the industry. The new program is based on the Little Company's recommendations, which were that a 5-year effort, aimed mainly at end-use research, should be undertaken as soon as possible.

RIVER MODEL—Engineering students at the University of Wisconsin look at a model of the Wisconsin River and its many power plants. The model, showing the 298-mile long stream from its source at Lac Vieux Desert in Northern Wisconsin to where it flows into the Mississippi south of Prairie du Chien, is electrically operated. The water flow and each of its 24 hydro-electric power plants and 21 reservoir dams are illuminated. The river's hydro plants produce a total of 190,075 hp. of electrical and mechanical energy. The students viewing the replica, given to the university by the Wisconsin Valley Improvement Co. of Wausau, are, left to right, Norbest Rhinerson, Fritz Kohli, Tom Maresca, Clint Knee, John C. Fisher, Bill Wondeberg, Gordon Anderson and Robert Blattner.

Faculty News

Chester A. Arents has been appointed assistant dean of engineering at Illinois Institute of Technology. He has been associate professor of mechanical engineering, having joined the staff in 1947 after serving a year as associate professor at Montana State college. He received his bachelor's degree at Oregon State in 1932. For a number of years he was a practicing engineer in Portland. From 1941 to 1943 he served as associate engineer for the Bonneville Power Administration.

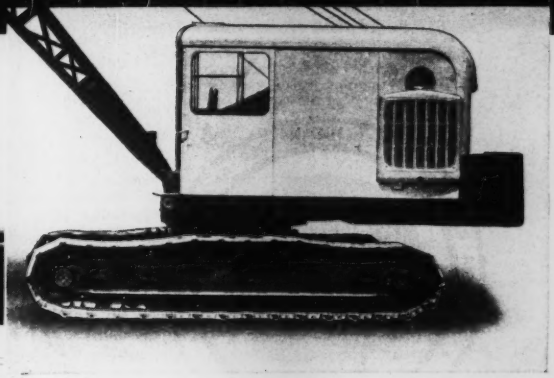
Haaren A. Miklofsky has been made and assistant professor of civil engineering at George Washington University, Washington, D. C., and Mark Kiley an instructor in civil engineering.

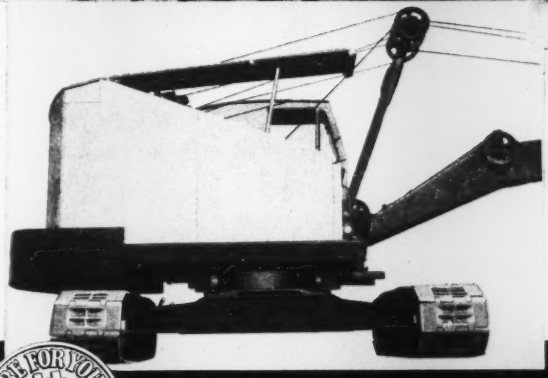
Clyde N. Laughter has been named assistant professor of civil engineering at the University of Delaware's school of engineering. He was assistant professor at Mississippi State College. He holds a bachelor's degree in civil engineering from the University of Alabama and a master's degree from Northwestern University. He had five years experience as a construction engineer at Nashville, Tenn., and four years as an assistant highway engineer with the Public Roads Administration. During the war, he was with the Army's Corps of Engineers.

Now! EXTRA-LONG CRAWLERS

For LORAIN

DRAGLINES, CRANES, CLAMSHELLS





◆ ***Enjoy these extra-long crawler advantages***

1. Greater ground bearing areas. **2.** Lower ground pressures. **3.** Improved soft-ground flotation. **4.** Elimination of "nosing-in" while digging.

◆ ***Extra-wide crawlers, too***

1. Available for TL and L-50 series. **2.** Straddle wide trenches. **3.** Distributes crawler ground pressures to prevent cave-ins.

MORE FOR YOUR $ IN A LORAIN

THEW-Lorain®

CRANES • SHOVELS • DRAGLINES • HOES • MOTO-CRANES

OVER 160 LORAIN COMBINATIONS TO SELECT FROM

3 series of models with new capacities and many new crawler and rubber-tire mountings, make the Lorain line more complete than ever before . . . the most complete assortment in the field. Today your Thew-Lorain distributor can fit your requirements exactly.

THE THEW SHOVEL CO.
LORAIN, OHIO

"Tag Master"

TAGLINE ADVANTAGES—
YOU NEVER HAD BEFORE

1 You can **CAST** a clamshell
2 You can **TWIST** a clamshell
3 You can **SNUB** a clamshell

NOTE FIELD APPLICATIONS

1. **Gravel bed for Dike pump line.** "TAG-MASTER" manual control. Gravel cast over a 25' range without booming or traveling. Considerable time saved; minimum hand spreading.
2. **Picking up rocks.** By **Casting** clamshell without swinging, crane operator reached rocks, set clamshell down with minimum damage.
3. **Digging thru blasted cuts.** Twisting bucket with "TAG-MASTER" control, operator positioned clamshell for picking up long rocks without waste of time. (Could apply to any long object.)
4. **Unloading crushed stone from car.** Ability to **cast** and **twist** enabled operator to reach into corners, minimized hand cleanup. (Could apply to any material in cars.)
5. **Pouring concrete wall.** Swing arc tended to carry bucket away from form. With "TAG-MASTER" control, operator pulled bucket so it followed form as he was swinging.

• ATTENTION •

Shovel Manufacturers
Equipment Distributors
Contractors

Seven years of experience prove the TAG-MASTER trouble-free, easy to operate, economical because of
(1) increased operation and
(2) low cost of operation.

Write for further information

MORIN
MANUFACTURING CO.
WEST SPRINGFIELD, MASS.

Elections and Activities

Carolina Road Builders Association elected C. P. Ballenger, Jr., Greenville, S. C., president to succeed J. W. Thompson, Greensboro, N. C.; and F. J. Blythe, Jr., Charlotte, N. C., vice-president. The Board of Governors consists of: W. F. Brown, Sr., Lexington, N. C.; John H. Brinkley, Thomasville, N. C.; J. T. Bostic, Asheville, N. C.; A. M. Yager, Columbia, S. C.; Harry M. Mimms, Orangeburg, S. C.; and J. L. Hiller, Columbia, S. C.

Richard Y. Jones, Joplin, has been elected president of the Missouri Society of Professional Engineers. Other new officers are Dean Wilson of Hannibal, first vice-president; Myron Lytle of Kansas City, second vice-president, and Harold J. Bruegging, Jefferson City, secretary and treasurer. New directors for three years: Leonard J. Linds of Centralia and Garvin H. Dyer of Independence.

The Ohio Valley Improvement Association Inc., waterway group, has elected J. Howard Marshall, president of Ashland Oil & Refining Co., Ashland, Ky., chairman of the board. Ralph L. Dickey, president of the Kelley Island Lime & Transport Co., Cleveland, succeeds A. B. Mack, of the same company, as a trustee. Alex Dann, executive vice-president of the Dravo Corp., Pittsburg, was added to the board, and George J. Shaw, Cincinnati, was re-elected. Among projects in which the group is interested are the Green River, Ky., modernization program; lock and dam at New Cumberland, W. Va.; Monongahela River modernization; Cumberland River modernization; and the Cincinnati pool.

James G. Cary of Hornell, N. Y., has been named president of the Tri-County Water Works Association. He succeeds Frank Nollett of Bath. Other officers: vice-president, Carl F. Wilson, Corning; secretary-treasurer, Charles Engelder of Wellsville. The meeting was attended by 56 members representing the 39 water departments of Steuben, Chemung and Allegany counties.

Edward C. Meagher, treasurer, Texas Gulf Sulphur Co., New York, has been elected president of the United Engineering Trustees, Inc. Other officers re-elected were: Irving V. A. Huie (ASCE), president of the Board of Water Supply, New York, James F. Fairman (AIEE), vice-president of Consolidated Edison Co. of New York, as vice-president; Kurt W. Jappe (ASME), retired director of purchases, Hercules Powder Co., Wilmington, Del., and treasurer of the American Society of Mechanical Engineers, as treasurer; James L. Head (AIME), Department of Mines, Chile Exploration Co., New York, as assistant treasurer. John H. R. Arms (AIME, ASME) was re-elected secretary.

R. E. Kimball of Williamston, N. C., has been elected president of the East Carolina Engineers Club succeeding Kenneth Knight, director of public utilities at Rocky Mount, N. C. Marshall Swartz, director of utilities at Greenville was elected vice-president; and W. J. Heard, city manager of Kinston was re-elected secretary-treasurer.

Revision of its membership structure, to return manufacturer members to an individual company membership basis, is announced by the American Road Builders' Association. The executive committee when it adopted a resolution restoring the original direct relationship which existed between ARBA and its manufacturer members prior to the organization of Construction Industries Association, Inc., three years ago. The Executive Committee asserted that this action in no way is to be construed as reflecting on Construction Industries Association, Inc., or any of its activities, but is taken as a means of strengthening the ARBA's position both as to its membership structure and the excellent position it occupies in the public mind.

MAJOR MEETINGS

Carolinas Branch A. G. C., Augusta, Ga., Nov. 27-29.

Industrial Waste Conference, Purdue University, La Fayette, Ind., Nov. 29-30.

Society for Experimental Stress Analysis, Hotel New Yorker, New York City, Nov. 30-Dec. 1.

American Municipal Association, Hotel Cleveland, Cleveland, Ohio, Nov. 30-Dec. 2.

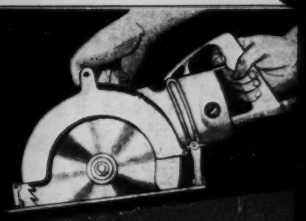
National Society of Professional Engineers, Hotel Rice, Houston, Tex., Dec. 8-10.

Highway Research Board, National Academy of Sciences, Washington, D. C., Dec. 12-16.

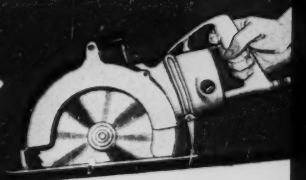
National Research Council, Washington, D. C., Dec. 13-16.

Associated Equipment Distributors, Stevens Hotel, Chicago, Ill., Jan. 15-19.

On every kind of cut!



SKIL Saw gives you safe-sure control



Only SKIL Saw gives you *sure* two-hand control on tough cuts . . . and *easy* one-hand operation on ordinary sawing. SKIL Saw's TWO scientifically placed handles are the reason . . . an *extra* you get only with SKIL Saw!

With one hand or both, SKIL Saw's power drives blades faster for quicker cutting on ripping and jack-rafter cuts. Choose from 8 hard-working models with cutting capacities up to 4 3/8 inches. Ask your SKIL Tools Distributor to demonstrate easy-handling SKIL Saw today!

ONE HAND OR TWO—

SKIL Saw gives you safety control . . . easy handling

SKIL ELECTRIC Tools PNEUMATIC

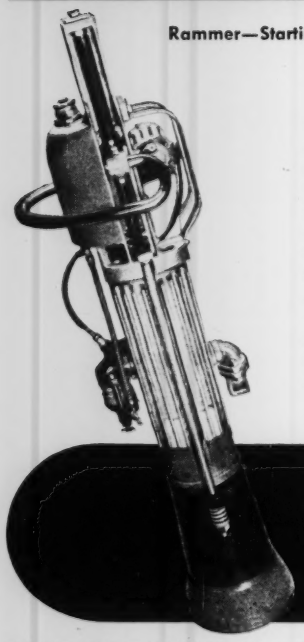
SKILSAW, INC.

EASY, INEXPENSIVE SOIL COMPACTION

The New BARCO RAMMER

Rammer—Starting

Rammer—Jumping



The new Barco Rammer is faster and more effective than any other type of tamper. It is easier on the worker, enables him to get more work done in less time, and at *lower cost.* Although rollers may do the compaction on large projects, they cannot reach locations close to abutments, culverts, walls and so on. But the new Barco Rammer remedies this situation, gives specified compaction. On large backfill tamping where a ditcher is used, the Barco Rammer works quickly and effectively. Today, with Federal, State and City authorities, as well as private corporations devoting more and more attention to these problems, the best answer is the Barco Rammer —the *entirely new* machine with the *entirely new method* of securing soil compaction. For more information write Barco Manufacturing Company, 1814 Winnemac Avenue, Chicago 40, Illinois. In Canada: The Holden Co., Ltd., Montreal, Canada.

BARCO

GASOLINE RAMMER

FREE ENTERPRISE—THE CORNERSTONE OF AMERICAN PROSPERITY

MEN AND JOBS

Col. Harland C. Woods, civil engineer and authority on Niagara power and Great Lakes waterways and harbors, is retiring as special assistant to the district engineer of the U. S. Corps of Engineers in Buffalo, N. Y. He has specialized in the design and construction of marine structures, flood control, and dredging problems. He is a civil engineer graduate of the University of Nebraska. He was an instructor in civil engineering at the University of Colorado, and assistant professor at Michigan State College, and professor at Robert College, Turkey.

Richard Barber, airport engineer for the CAA at Seattle, Wash., has been appointed Wenatchee district engineer for the Washington state highway department, with which he had served for 20 years before the war. He replaces **J. W. Hamilton,** who will continue with the department in another capacity.

George R. Jernigan is assistant city engineer of Vero Beach, Fla. He is a graduate of Louisiana State University.

Joseph B. Diamond, licensed professional engineer and attorney at law, is resigning as Deputy Commissioner of Public Works of the City of New York, to resume the practice of law with Bleakley, Platt Gilchrist & Walker, at 120 Broadway, New York City. Mr. Diamond was a lieutenant commander in the Navy in the Aleutians and the Pacific with the Seabees.

Rear Admiral J. H. Hawley, assistant director of the Coast and Geodetic Survey, has retired after 42 years of government service. Admiral Hawley was instrumental in the development of the wire drag method which has located navigational hazards in Alaska and along this country's coasts. He

(*Continued on page 65*)

American Bridge Co. officials foregather at the new Mystic River bridge construction job, following completion of 800-ft. main span to connect Boston and Chelsea, Mass. Left to right, C. E. Webb, chief engineer; Edward Nimmergood, superintendent of construction; C. A. Doerr, vice-president in charge of erection; Carroll Peterson, resident engineer; J. M. Nash, manager of erection, eastern district.

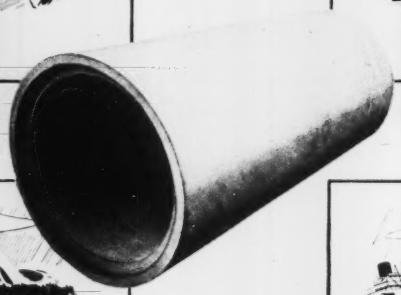
At a conference of highway planning engineers at Charleston, W. Va., are, seated left to right: C. A. Rothrock, planning engineer, W. Va., Road Commission; Conley Sample, financial manager, West Virginia; Harry C. Schwender, traffic manager, West Virginia; M. C. Catlette, inventory manager, West Virginia; F. J. Murray, chief engineer, Ohio planning surveys; M. Earl Campbell, engineer, traffic and operations, Highway Research Board, Washington; M. F. Kent, highway economist, PRA, Charleston. Standing are J. R. Pulliam, manager traffic section, Kentucky; R. E. Bagby, director of planning, Kentucky; E. H. Holmes, PRA, Washington; W. O. Martin, traffic manager, Ohio; N. L. Cooper, road inventory, Ohio; K. M. Wilkinson, associate traffic engineer, Virginia; K. G. McWane, traffic and planning engineer, Virginia; Jerry J. Constantine, financial division, Kentucky Highway Department; George W. Cassell, traffic division, Maryland State Roads Commission.

Walter H. Nalder, chief designing engineer of the Bureau of Reclamation, has accepted a United Nations request to serve with the Economic Survey Mission for the Middle East. He will leave soon for Beirut, Lebanon, to join members of the mission now there working under the direction of Gordon Clapp, chairman of the board of directors, Tennessee Valley Authority. The mission is studying problems of displaced Arabs in the Middle East, whose welfare is being considered by the United Nations. Nalder, is a bureau employee for 40 years and one of the country's engineering authorities on irrigation and reclamation developments.

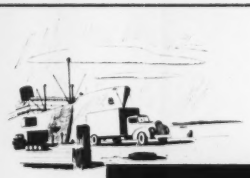
LOCK JOINT REPEAT PERFORMANCES

DETROIT—Since 1942
13 jobs—Totalling
186,950′ of 24″-72″ pipe

WASHINGTON D. C.—Since 1925
16 jobs—Totalling
117,510′ of 20″-78″ pipe



DENVER—Since 1920
24 jobs—Totalling
501,302′ of 20″-90″ pipe



NORFOLK—Since 1921
17 jobs—Totalling
511, 547′ of 20″-54″ pipe

Why do they all choose Lock Joint Pressure Pipe—again and again—for their major water supply projects?

THERE ARE FOUR MAIN REASONS

1. **Great structural strength at minimum cost.**
2. **Retains its high carrying capacity for generations.**
3. **Maintenance and repair costs, if any, are negligible.**
4. **An extremely long life of unfailing service.**

"Repeat performances" in key cities are positive proof that these conservative claims are true. We shall be glad to furnish specific references in these cities or in any other of more than 150 cities and towns in the western hemisphere which enjoy the unsurpassed services of Lock Joint water supply lines.

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Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

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Reinforced Concrete
PRESSURE PIPE

was graduated from Clarkson College of Technology, Potsdam, N. Y. in 1907 and entered the survey immediately. For 25 years he surveyed and charted coastal waters of the United States, Alaska and the Philippines.

Emanuel H. Pearl, formerly public health engineer with the Santa Barbara County, Calif., Health Department, is the new chief sanitation officer for the Santa Clara County Health Department at San Jose, Calif. A graduate of the University of Texas and a registered sanitation, civil, and chemical engineer, Mr. Pearl was with the U. S. Army Corps of Engineers for more than 5 years. Prior to that, he worked for the U. S. Public Health Service where he was connected with the Ohio River Stream Pollution Survey, and he was also associated with the Texas State Department of Health.

Michael J. Stankewich is now chief of the bureau of water and sewage control engineering of the Erie County, N. Y., health department, including the city of Buffalo. Mr. Stankewich handles supervision of public water supplies, public sewerage and sewage disposal, control of industrial wastes, stream pollution, swimming pools and bathing beaches. He formerly was sanitary engineer with the New York State Department of Health and during the war was sanitary officer and instructor in sanitation in the Army. He is also engaged in part time teaching of environmental sanitation at several schools of the University of Buffalo including the School of Medicine.

L. C. Urquhart, colonel, Corps of Engineers A.U.S., has become associated with O. J. Porter and Co., consulting engineers, Newark, N. J., and San Francisco and Sacramento, Calif. Wartime chief of the engineering division in the Office of the Chief of Engineers, since 1946 he has acted in a similar capacity in the Honolulu district office. With the Porter Co. he will be assistant chief engineer and in charge of their eastern offices. He will also be assistant chief engineer for Edwards & Kelcey, Frederick R. Harris, Inc., and O. J. Porter & Co. in their joint offices at 3 William St., Newark.

In preparation for state highway department operation of toll bridges now being bought by Pennsylvania, **James R. Long,** maintenance engineer in the Dauphin County District, has been transferred to the headquarters organization, Harrisburg, as maintenance engineer over toll bridges.

Jack H. Gould is the new director of public works in Richmond, Va., succeeding **Gamble M. Bowers,** retired. Gould is a graduate of Virginia Military Institute, was city manager of Decatur, Ga., and has been a consulting engineer.

Corwin Mocine, planning director for Phoenix, Ariz., has been named city planning director of Berkeley, Calif., as a result of a nation-wide competitive examination. A University of California graduate and wartime Marine Corps captain, Mr. Mocine formerly was planning director for San Mateo County, Calif.

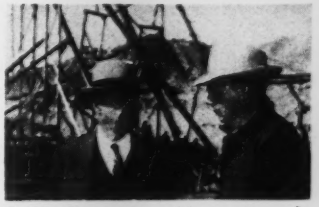
John P. Fave, former engineer at the Jones Mill aluminum plant has been named city engineer of Hot Springs, Ark.

Henry Hagel, formerly with Hall, Turpin & Wachter of Baltimore, Md., is entering private practice as a consulting engineer on structures. For various companies he has supervised the design and construction of many buildings in this country and South America. His office is at 4307 Norwood Road, Baltimore 18, Md.

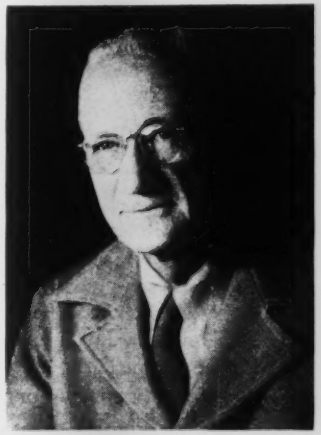
Appointment of **George A. Meskal** of Duluth as district engineer of the Minnesota Highway Department in northwestern Minnesota, to succeed the late A. M. Graves of Bemidji, is announced. The district embraces 12 counties. Appointment of **W. L. Hinderman** of Minneapolis as district maintenance engineer at Duluth to succeed Mr. Meskal is also announced. Mr. Meskal is a civil engineering graduate of the University of Minnesota, and a veteran of both world wars. Mr. Hinderman is a civil engineering graduate of the University of Minnesota. He started work for the highway department in 1927. In 1942 he entered the U. S. Navy as a senior lieutenant. In the Pacific theater, he was promoted to lieutenant commander.

(Continued on page 67)

Maj. Gen. Charles H. Corlett, USA ret., has become vice-president of the Texas Housing Co. of Dallas, Tex., and of the New Mexico Housing Co. of Santa Fe. He is a graduate of West Point and a veteran of both world wars.



R. M. Conner, consulting engineer for Morrison-Knudsen, Inc., discusses progress on Morelos Dam in Mexico with James D. McClary, project manager. Connor was project manager on the construction by Morrison-Knudsen of Imperial Dam, located some 23 miles upstream on the Colorado River. Morelos Dam is being built by the contracting firm, Morrison-Knudsen de Sonora, S. A., of which McClary is vice-president.



James F. Spofford, irrigation manager of the 100,000-acre Owyhee Project (Oregon-Idaho), has been promoted to superintendent of the Bureau of Reclamation Minidoka Project in southeastern Idaho. He replaces John S. Moore, retired, as superintendent of the project, which delivers a full or partial supply of water for a million acres in the Snake River Valley.

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for enduring, economical structures

HIGH BRIDGES like this one on the Kansas City Southern Railway near Kansas City are especially vulnerable to the destructive forces of weathering. Yet this concrete arch bridge has suffered little from more than 20 years of continuous exposure to wind, rain, snow, sleet, heat, cold and frequent freezing and thawing cycles.

Such resistance to weathering is typical of quality concrete construction. Concrete structures can be designed to withstand any natural wearing action—underwater, underground or in the atmosphere.

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A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

MEN AND JOBS

(Continued from page 65)

Edward M. Martin, 70, assistant division engineer for the Ohio Highway Department in Division No. 11 at New Philadelphia for ten years, has retired. He formerly was Jefferson County engineer. **Dean Beauregard,** Newcomerstown, Ohio, previously division bridge engineer, was named to succeed him.

Col. Donald S. Burns has been appointed Portland district engineer, Corps of Engineers, succeeding **Col. O. E. Walsh,** elevated from Portland district engineer to North Pacific division engineer. Since August, 1947, Colonel Burns has been chief of the engineering division for military construction in the office of the Chief of Engineers, Washington, D. C. He was graduated from West Point in 1920, and served more than three years overseas.

Decimus C. Barbot is city manager of Florence, S. C., succeeding **Edward L. Blackwell,** who resigned to become city manager of Newberry, S. C. Mr. Barbot had been employed by the South Carolina State Highway Department since 1928.

Philip L. Rea is credit examiner for the Ohio Department of Highways, succeeding Clarence D. Hartzler, resigned. He has been head of the new highway engineers training program, and will continue to supervise that work. The credit examiner is concerned with prequalifying all contractors who bid on state highway projects. Mr. Rea, a registered engineer, has a Bachelor of Arts degree from Oberlin, a Master of Arts from Marietta and Illinois universities. He has been with the department since 1927 and since 1937 he has served as federal project engineer.

Herbert H. Lauer, plant manager of the Glens Falls, N. Y., Portland Cement Co. for the last 6½ years, has resigned to enter into consulting engineering in the Land Title Bldg., Broad & Chestnut Sts., Philadelphia, Pa. Mr. Lauer designed and had charge of construction of the Waco, Tex., plant of the Universal-Atlas Cement Co. and the San Juan, Puerto Rico, cement plant as well as numerous installations at Atlas Portland cement plants, mines and quarries. Formerly he was superintendent of the Green Bag Cement Co., Neville Island, Pittsburgh, and engineer in coal and metal mining, milling and smelting in Alabama, Tennessee, West Virginia, Illinois and Mexico. He is a graduate of Lehigh University.

D. J. Fletcher has been named assistant chief hydraulic engineer for Aluminum Co. of America. He joined ALCOA in 1926 in the hydraulic engineering department. In 1931 he was transferred to the development division, and he was made chief engineer of that organization in 1944. During the war he was active in development work on military applications for aluminum, and on the atom bomb project.

Commander Roy E. Huhs, formerly officer in charge of all public works functions on Treasure and Yerba Buena islands, San Francisco Bay, has become city manager of Chico, Calif., succeeding Harry H. Hume. Commander Huhs, a reserve officer soon to be released from the Navy, was

(Continued on page 68)

Rear Admiral John J. Manning, CEC, USN, Chief, Bureau of Docks (standing) addresses Northern California members of the Civil Engineering Corps Reserve Officers' Association at a dinner meeting in San Francisco. Left to right, Adm. Lynde D. McCormick, USN, Commandant, Twelfth Naval District, Adm. Manning, Adm. George D. Murray, USN, Commander Western Sea Frontier, and Adm. Carl A. Trexel, CEC, USN, Director Pacific and Alaskan Division, Bureau of Docks. U. S. Navy Photo.

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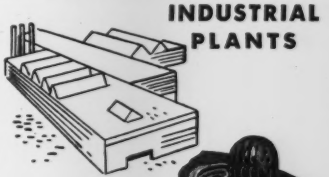

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graduated from the University of California in civil engineering. His experience has included work with the U. S. Forest Service and the California state Division of Highways, bridge department, and he has held the position of public works officer at various Navy stations.

Clyde L. Moyer, Columbus, Ohio, civil engineer, has been named by Gov. Frank J. Lausche as a member of the Ohio Reclamation Board of Appeals.

B. M. Duncan, Florida State Road Department engineer, has been named assistant superintendent of the Tampa department of public works. He will direct the construction of Tampa's $13,000,000 master sewer system.

The offices of **Wm. C. Custer,** consulting engineer, have been moved from 77 Summer St., to 683 Atlantic Ave., Boston 11, Mass.

Thomas G. Johnson, formerly of the Ocala, Fla., district office of the U. S. Geological Survey, has been named assistant hydraulic engineer for the Geological Survey at Asheville, N. C. A graduate of the Alabama Polytechnic Institute, he spent seven years with the Army as a civilian engineer in the Rivers and Harbors division, and joined the Geological Survey with the Florida district in 1939 as hydraulic engineer, junior grade.

E. S. Jones has been appointed deputy minister of the British Columbia department of public works, succeeding the late Norman W. MacPherson.

Five engineers have been appointed to speed up the $100,000,000 highway program of Massachusetts. They are: **John McCloskey,** Marblehead, senior civil engineer, will be project engineer; **Edgar F. Copell,** Newton Center, traffic engineer, will have charge of traffic and serve as head of the highway maintenance division; **William C. Tuttle,** Brockton, a state engineer since 1922, will head the division of construction; **Charles Weller,** Salem, civil engineer, will serve under Chief Engineer Kitfield and also act as liaison with division heads.

Mr. McCloskey takes the place of **George H. Delano,** who is working on plans for the skyway from Mystic River Bridge to Haymarket Square, Charles St., and Northern Artery. Mr. Copell is succeeding **James E. Lawrence,** on leave.

★★★★ **Barber-Greene** ★★★★

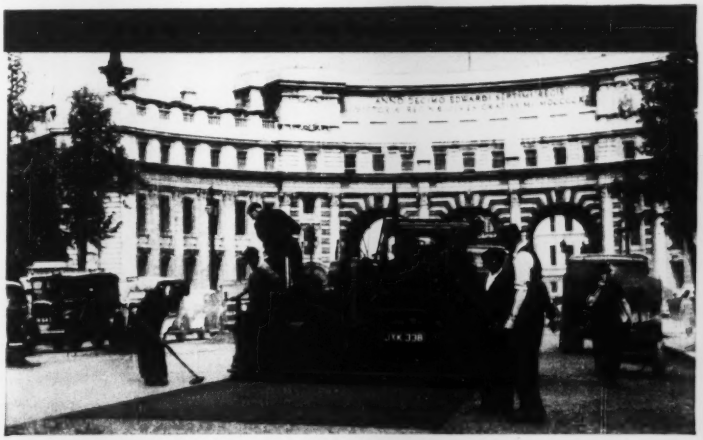
PRTD. IN U.S.A. B-G COST-SAVING BULLETIN NO. 4907 47M AM-10-49

NEW SAVINGS IN LOADING, DITCHING, CONVEYING, AND PAVING WITH B-Gs

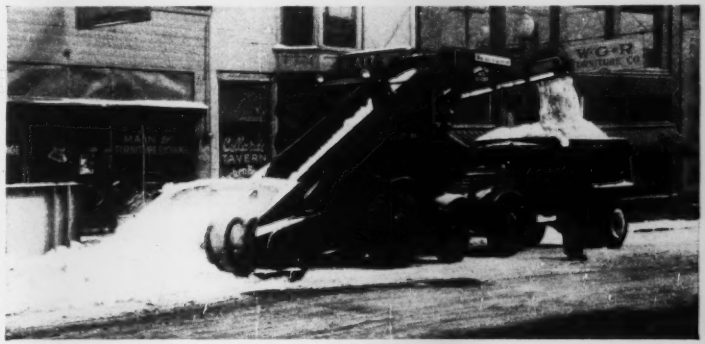
B-G Finisher Lays "Red Carpet" to Buckingham Palace

LONDON, England:—London's famed Mall, which features so prominently in the news whenever the King officially leaves or enters Buckingham Palace, is getting a new regal "red carpet" of red asphalt, placed by a B-G Tamping-Leveling Finisher. Under the direction of the Ministry of Works, the ancient wood block paving of the Mall was removed, and the sub-grade repaired. After a three-inch base course was placed, a one-inch wearing course of red granite, limestone dust and red (pigmented) asphalt was laid. Finally, red granite chips were spread as a seal coat.

The Limmer and Trinidad Lake Asphalt Company, contractors for the work on the Mall, has eighteen B-G Tamping-Leveling Finishers in operation—an example of how popular B-G Finishers are with contractors throughout the British Isles and the Continent. Their high speed performance, ability to place a smooth, level surface regardless of variations in the sub-grade are features that have established them as the leading road-surfacing method.



Green Bay's SNOW Loader Removes 562 Loads in 14 Hours



648180

Green Bay, Wis.:—After one storm here, the city's B-G Snow Loader, working with twelve trucks, removed a total of 562 loads in a fourteen-hour period, loading a seven-yard truck in from 16 to 30 seconds. Such performance has meant a tremendous saving in costly truck time—especially when compared with manual methods or with machines not specifically designed for snow removal.

Green Bay, typical of so many other "snow-belt" cities, has found that the B-G Snow Loader answers the problem of getting busy streets clear of snow with minimum traffic delay—and minimum cost. The Loader meets snow removal emergencies anywhere in the city in a matter of minutes—traveling under its own power at over seven miles per hour.

Wichita, Kan.:—This city's use of B-G 522 Snow Loader shows how a community can benefit from the two-way service it makes possible. In the summertime the 522 Loader loads trucks with sand, gravel or stone at a 1½ yard-per-minute rate. As winter approaches, by simply substituting an inexpensive and easily installed snow loader flight line, Wichita's 522 is equipped to load snow at as much as five yards per minute.

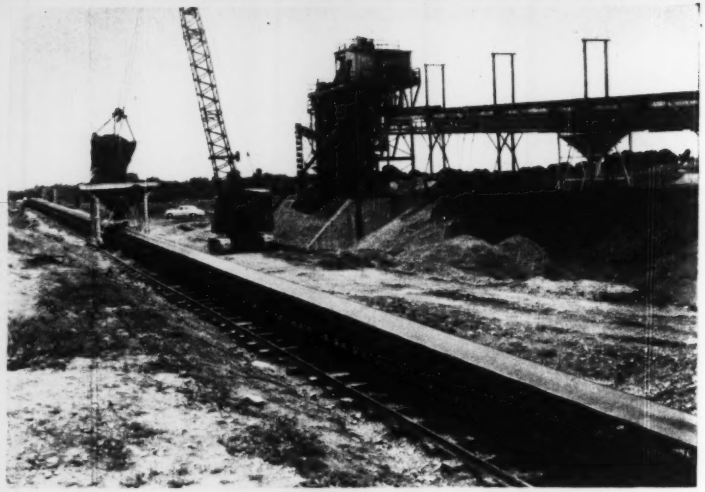
54937

Digs, Screens and Loads Steel Mill Sand in One Operation

A-670-B

Leetonia, O.:—Single-pass performance of three important operations—digging, screening and truck loading—is standard procedure for two B-G Crawler Mounted Loaders operated at the Francis Brennan pit near here. Brennan, who supplies fine, screened, high clay content sand to the Youngstown steel mills, began ten years ago with a single machine and added the second Loader recently to bring the operation up to peak capacity.

Operating each Loader is essentially a one-man job. Thus at extreme low cost, maximum volume of an exceptionally fine product is obtained here where everything over $^3/_8$" is considered "oversize" and removed. Brennan's Crawler Mounted B-G Loaders are part of a complete B-G line which includes pneumatic-tired, self-propelled types for all bulk materials truck-loading services.



849227

Consumers Company speeds processing with barge-loading conveyors

Lacon, Ill.: One of the Midwest's largest aggregate producers, Consumers Company, solved its most recent large scale handling problem through the skillful use of an interesting plant-to-barge belt conveyor system. As a result, the company has stepped up its output to 250 tons per hour at its river gravel plant near here.

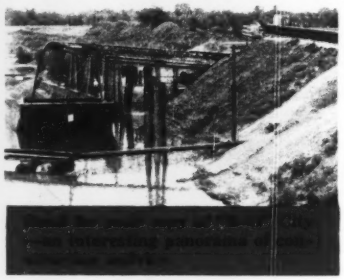
Consumer's dredge works in an inlet off the Illinois River, pumping up sand and gravel from an estimated 163 acre bed. The material is pumped directly to a tower screening and processing plant on the bank where the wet aggregate is sized and separated. Stone of uniform 1" size is discharged from the plant over a B-G Belt Conveyor at a height of some 70 feet.

Finer sizes are carried out of the plant in a long de-watering flume which forms a long stock pile adjacent to a 320' B-G Belt Conveyor. This Conveyor is loaded from a crane-fed movable hopper and discharges into a barge-loading Shuttle Conveyor. The 850-ton barges are quickly loaded on a highly economical basis.

On simple conveyor set-ups such as this one, as well as on the most elaborate type of conveying jobs, B-G's "standardized" design, which permits easy assembly and equally easy disassembly for relocation, is a decided asset.

B-G Barge Loading Shuttle Conveyor loading 850-ton barge at Consumers Co. gravel plant.

849229



Soft Ground or Caliche . . . These B-G Ditchers Take It in Stride

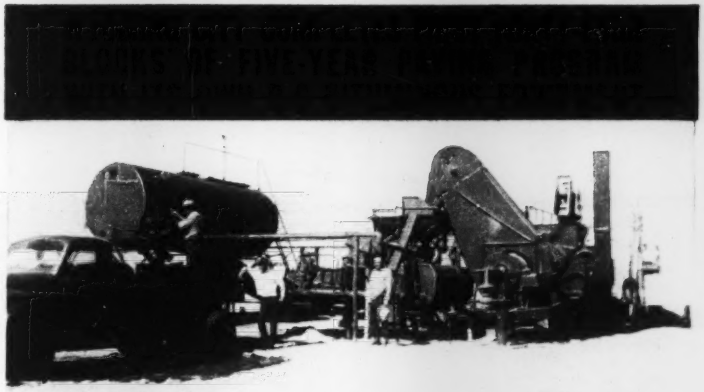
849177

Dallas, Tex.:—The performance of their B-G Runabout Ditcher has shown officials of a local gas company how to cut the cost of digging scattered service trench even under toughest conditions. The Runabout has proved that it will dig at an economical rate even through tough caliche and through soils containing rocks, boulders and abrasive sands. Much credit for this performance is given to the B-G Vertical Boom with "milling action" bucket line that literally "mills" its way into the soil.

The Runabout drives to scattered jobs at 15 miles an hour under its own power—digs close to obstructions, leaves no ramp to be dug out by hand.

847477

Aurora, Ill.:—All classes of digging confront the B-G 44C Ditchers operated by a midwest utility in furthering the company's expansion program. Not the least difficult is the job shown here—digging in tough, sticky soil. Here again the efficiency of the B-G Vertical Boom with "milling action" bucket line pays off. As the line flexes over the head sprocket, the heavy material is literally "kicked out," and the trench is dug at a steady pace. The bucket line is protected by the Barber-Greene Automatic Overload Release which trips automatically when a boulder or other hidden obstruction is encountered—and automatically resets itself when the obstruction is removed.



249219

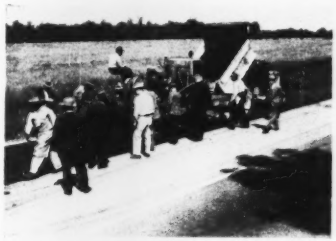
Program Calls for Paving Every Street in Town . . .

Casper, Wyo.:—A record of paving 44 blocks of streets between June 8th and August 10th with their own B-G equipment—plus a five-year plan for paving every street in the city—is the example of a practical improvement program furnished by this community.

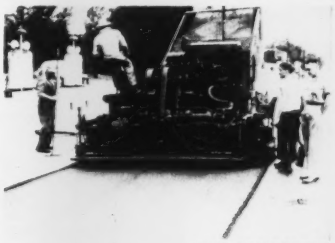
City officials, anxious to provide taxpayers with the best streets possible, were confronted with the problem of finding the contractor and equipment to handle the work. Since these were not available locally, the city decided to do its own paving work, selecting a B-G Maintenance Plant and Tamping-Leveling Finisher for the job. The B-G Plant is set up in a gravel pit owned by the city and charged by a front-loading shovel. The bituminous mix is trucked to the job site where the Finisher places a smooth, level surface regardless of variations in the subgrade.

Quoting Mr. Leo Hallock, Councilman, the work done so far this year has "already paid for the plant and other necessary equipment."

"Rubber Road" Experiments Attract Attention of Road Builders, Safety Officials



Interested group of officials watching application of rubber surface by B-G Finisher 5 miles west of Richmond. Photo courtesy Virginia Department of Highways.

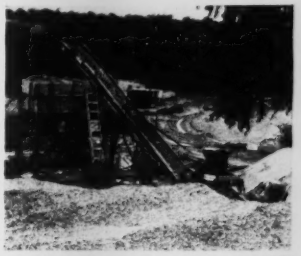


CHICAGO DAILY TRIBUNE

Experimental rubberized pavement laid on Ohio road by B-G Finisher. To be studied by State Highway Department officials for durability and non-skid qualities.

For years the idea of somehow incorporating the non-skid and durability features of rubber into road surfaces has challenged interested contractors, engineers, and safety officials. In recent months much progress has been made towards proving—or disproving—the practical usefulness of such an idea. All of the test roads reported have been laid with Barber-Greene Tamping-Leveling Finishers. Actually, while only a small quantity of rubber is used in the roadway (in the neighborhood of 7 lbs. to a ton of mix) it is felt that even this small amount will serve to skid-proof the surface sufficiently to permit stops on wet or dry pavement sooner than if the rubber were not included. In the Virginia tests, 500 ft. of rubber asphalt and 500 ft. of regular sand asphalt were laid end to end in a 1,000 ft. strip. In the Ohio test the 300 ft. test road is now being studied by the State Highway Department.

Versatile Unloader-Conveyor Team Solves Variety of Problems



449695

Colchester, Ill.:—By-passing the need for using an expensive clamshell or shovel to load their mixer-charging hopper, McCann and Co., Inc. enlisted their low-cost, portable B-G Conveyor and Belt Car Unloader to do the chore at the site of their earth-filled dam job near here. It is practically a one-man operation: a bulldozer merely keeps the Unloader supplied with sand or stone and the machines do the rest. When not in use here, the Conveyor and Unloader are towed 5 miles to town to unload aggregate and cement from railroad cars—real every-day usefulness.

Oklahoma City, Okla.:—Building the city's South Side Disposal Plant called for filling 12 filter beds with high grade limestone to a depth of 6′ to 7′—which meant unloading nearly 1800 carloads of this costly, dust-free rock. Not long ago this would have required expensive unloading equipment, but the B-G "team"—Belt Car Unloader with Portable Conveyor—unloaded the cars so rapidly that they had to be kept operating at less than capacity to allow time for the stone to be placed in the beds. Time after time on the widest variety of unloading jobs, this team has set new standards for low cost, fast unloading of bulk materials.

445288

Barber-Greene

NEWEST IN ASPHALT, MATERIAL HANDLING AND DITCHING EQUIPMENT

849137

New Heavy-Duty Portable Conveyor

Latest addition to the long line of modern Barber-Greene Portable Belt Conveyors is the model 374, designed for a wide range of heavy duty loading, unloading and stockpiling services—for municipalities, contractors, industrial plants, mine and aggregate producers, etc. The 374 is available in a wide selection of lengths up to 60′ and in belt widths of 18″, 24″ and 30″. It further features swivel wheels, hydraulic hoist, antifriction carriers and a choice of gasoline or electric power. The 374 is entirely line-shaft driven to assure smooth, steady operation and low maintenance. Also available without the truck as a handy, semi-permanent unit.

Here Are Suggestions for Cutting Road Costs

BULLETIN 843

"Suggestions for Cutting Road Costs" is the title of a new bulletin which should be of vital interest to all connected with road construction—contractors, engineers, state and county highway department officials, etc. Here is a new kind of literature—which gives valuable facts on stretching the road-building budget. Use the coupon to get your copy.

Use This Coupon to Get Full Information on B-G Equipment That Interests You

Make up your mind now to get full information on the Barber-Greene equipment which will help you save man-hours and money. Complete specifications and literature are available on all B-G equipment described in this bulletin. Use the convenient coupon below to indicate the equipment in which you are interested. Look this bulletin over again—and fill in and send the coupon today!

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BARBER-GREENE COMPANY
Aurora, Illinois, U.S.A.

Notes on Legal Decisions

Summaries of decisions relating to construction prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phrases of Construction Contracts (McGraw-Hill)

Effect of Preventing Performance

The failure of one party to a contract to comply with its terms releases the other party from the obligation to comply with it. However, a party to a contract cannot take advantage of his own act of omission to escape liability thereon and hence, where he causes or sanctions a breach, he cannot recover damages for nonperformance or interpose the breach as a defense to an action on the contract. Under this rule, performance of a contract is excused when it is prevented by the acts of the other party or is rendered impossible by him.[1] (Kelley v. Northern Ohio Co., 196 S. W. 2d 235; Pfaff v. Petrie, 71 N. E. 2d 345).

In a case in which the structure erected under a written contract between the owner and the contractor was materially different from the one provided for in the original contract as a result of orders given by the owner while the building was being erected,[2] the court held that such acts by the owner constituted an abandonment of the original contract and entitled the contractor to recover on a *quantum meruit*—that is the fair and reasonable value of the work performed. The court in its opinion stated: "The law is well established that where a contractor is prevented by the other party from fulfilling a building contract he may recover reasonable compensation for his work and labor regardless of the contract price."

"When one party to a contract deliberately prevents the other party from carrying it out he cannot use the results of such actions as a defense against an action for damages brought by the other party."[2]

(1) Kelley v. Northern Ohio Co. 196 S.W. 2d 235; Pfaff v. Petrie, 71 N.E. 2d 345.
(2) Baerveldt & Honig Const. Co. v. Dye Candy Co., 212 S.W. 2d 65, Supreme Court of Missouri, June 14, 1948.
(3) McWithy v. Heart River School District No. 22, 32 N.W. 2d 886, Supreme Court of North Dakota, June 10, 1948, and cases

Some Agreements To Be Valid Must Be Reduced To Writing

In some states it is provided by special statutes that certain agreements are void unless the agreement, promise or undertaking or some note of memorandum thereof is in writing and subscribed to by the party to be charged of his lawful agent. Thus, the New York Personal Property Law (Section 31) among other things provides that the following agreements must be evidenced by a written instrument:

"1. By its terms is not to be performed within one year from the making thereof or the performance of which is not to be completed before the end of a lifetime.

"2. Is a special promise to answer for the debt, default or miscarriage of another person,

"3. Is a subsequent or new promise to pay a debt discharged in bankruptcy."

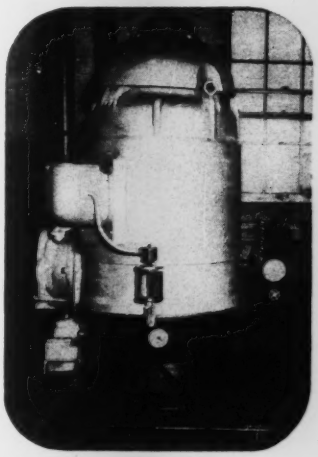
With the above exception, where the parties agree orally upon all the material terms of a contract, an intention to put the contract in writing is not inconsistent with an intent to be bound by the oral agreement.[3]

"In an agreement to alter, repair or construct a building, where the work to be done is set forth and the price to be paid is fixed, all the essentials of a binding contract are present. The mode of payment of the price, whether in installments, or otherwise, is merely an accidental stipulation."[2]

In this case, the contract was executed on a printed form and certain blank spaces providing for a down payment and for monthly installments and for the execution and delivery of certain promissory notes to cover the monthly payments were not filled in. The court held that a valid enforceable contract existed.

In Disken v. Herter[3] the action was brought to recover damages for breach of a contract to do the plastering work in certain buildings being erected by the defendant. The work to be done and the price to be paid were agreed upon. The defendant claimed that the understanding was that there was to be no binding contract until the plaintiff gave a performance bond and until the contract was reduced to writing. Plaintiff claimed that the giving of a bond was demanded after the agreement had been reached and he refused to furnish the bond because defendant refused to enter into the written agreement.

It appeared that at the time defendant demanded the bond, he had already entered into a contract with someone else to do the work for a lesser amount. The court held that the oral agreement was enforceable and that the demand for a bond and the refusal of the defendant to permit plaintiff to proceed with work were mere subterfuges to get plaintiff contractor to abandon rights acquired



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under the existing oral contract.

"It is well established that if only a part of the terms of a transaction are agreed upon and others are intended to be left for subsequent negotiation, there is no meeting of the minds. (citing authorities).

"It is also equally well settled that where all the terms are agreed upon, and nothing remains but the formal reduction of the agreement to writing, or to a more formal writing, the minds have met, even though the formal contract is never thereafter, executed [Citing authorities]"[4]

Where the parties contemplate that their agreement shall be reduced to writing before it shall be considered complete, there is no contract until the writing is signed. "Acts of performance by one party accepted by the other unquestionably indicate that the parties understood that definite terms had been agreed upon; so that even if the oral agreement prior to the act of performance did not constitute a contract, the subsequent tender of performance amounts to an offer, and the receipt of performance without objection amounts to an acceptance of the offer. On the other hand, acts of performance by one party, unless they have been received as such by the other, cannot be evidence that the latter, either had previously made an agreement on definite terms or that he had subsequently assented to the contract."[5]

(1) Murphy v. Chichetto, 79 N.E. 2d 898, Supreme Judicial Court of Massachusetts, June 4, 1948.
(2) Lillis v. Owens, 21 So. 2d 185, Court of Appeals of Louisiana, Feb. 26, 1948.
(3) Disken v. Herter, 73 App. Div. 453 77 N.Y. Sup. 300, affirmed without opinion 175 N.Y. 480, 47 N.E. 1081.
(4) Eisenberg v. Spachmann, 190 N.Y.S. 662.
(5) Williston on Contracts, Rev. Ed., Sect. 28A.

As Quickly as Possible

The words "as quickly as possible" in a contract for drilling wells does not mean immediately, but with reasonable diligence or without unreasonable delay.

Where a contract for drilling a well set forth a specific date when the drilling would begin, failure to begin drilling until ten days after such date because of unfavorable conditions which developed on another well-drilling job, constituted a breach of the contract.

In order to warrant a recovery of damages for breach of the contract, there must be a causal relationship between damages asserted and the breach; and proof which leaves such issue in the realm of speculation and conjecture, is insufficient to support a judgment.[1]

(1) Western Land Roller Co. v. Schumacher et al., 36 N.W. 2d 777 (Supreme Court of Nebraska, April 14, 1949.)

RESULTS OF P.T.L. NAIL PULL TESTS MADE WITH MACOMBER V BAR JOISTS IN COMPARISON WITH WOOD

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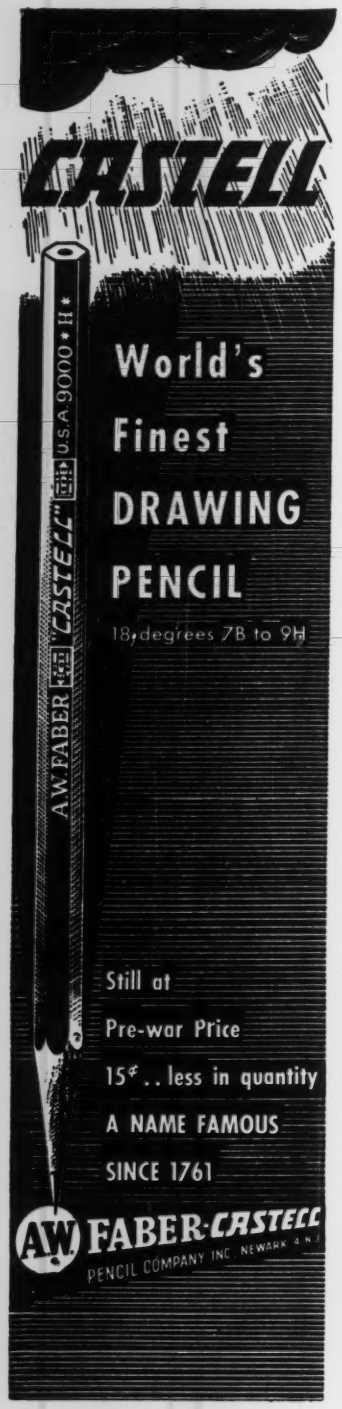

OBITUARY

John Oman, Jr., 76, founder and active senior partner in the Oman Construction Co. of Nashville, Tenn., died Nov. 6. The contracting firm's current operations include construction of a $10,000,000 Greenbrier-to-Oak Ridge natural gas pipe line and the relocation and straightening of several railroad lines in that area. Projects constructed by the firm during World War II included the telephone lines from Edmonton, Alta., to Fairbanks, Alaska, along the Alaska Highway; Wolf Creek Ordnance Plant at Milan, Tenn., the Classification Center in Nashville, and numerous airports and other large works.

Thomas M. Keene, 79, formerly engineer for the U. S. Public Roads Administration, died at Brookline, Mass., Nov. 4. He was a graduate of Massachusetts Institute of Technology, 1891, and served as a highway engineer in Montana, Oregon, and Massachusetts.

Prof. Addison F. Holmes, 67, of Massachusetts Institute of Technology, died at Winchester, Mass., Nov. 5. Professor Holmes began teaching at M.I.T. after graduation in 1904, specializing in applied mechanics and strength of materials. He was a major in the Ordnance Corps in World War I.

James V. Ferry, 69, builder and contractor, died at Atlantic City, N. J., Nov. 9. He studied engineering at Scranton, Pa. He had lived in Atlantic City in 1914, and previously had constructed large sewers in Baltimore, Md., and worked on bridges and tunnels in W. Va., Ky., N. Y., Pa., and Ohio.

Clarence B. Hoover, 68, superintendent of the Columbus, Ohio, division of water for more than 25 years, died in that city Nov. 5. A graduate of Ohio State University, 1903, he became an authority on municipal water supply and his service for Columbus began 45 years ago. The new dam soon to be constructed over Big Walnut Creek as the newest feature of the city's water system is to be called Hoover Dam in his honor.

Harry F. Slater, 58, of Clemons, N. C., section superintendent with the North Carolina Highway Commission, with which he had been connected for 33 years, died Nov. 2.

W. A. Vaughn, a construction engineer formerly of Birmingham, Ala. but recently connected with the Logan Brothers Construction Co., Georgetown, Ind., died in Richmond, Va. Oct. 30.

Lawrence W. Seaman, 71, early day Indiana road builder, who built U. S. 33 from Goshen to Fort Wayne, the first 16-ft brick highway in the state, died Oct. 26.

Commander Carl Hagensen, 38, formerly of Rochester, Minn. a graduate of the University of Maine, who was engaged in civil engineering work when he entered the Navy and who led 90 men in underwater demolition work in the invasion of Normandy Beach, died Oct. 31. He was decorated with the bronze star and commended also for his invention of a demolition charge which the Navy used during the war.

Robert W. Minter, 39, an engineer with the Kentucky state highway department for the last 12 years, died at Lexington on Nov. 1.

N. Romeo Beaudet, 64, civil engineer in Ottawa, Ont., and Montreal, Que., died in the latter city Nov. 5.

George H. Fenkell, 76, retired superintendent and general manager of the Detroit, Mich. Department of Water Supply (1913-1938), and former commissioner of public works (1913-1918), died Nov. 8. He was a graduate of the University of Michigan. He supervised construction of the present Bell Isle bridge, and the Springwells pumping station; designed the nucleus of Detroit's present sewer system; conceived the idea, in 1914, of using water flushers to clean streets; modernized the Detroit public works department, and the water supply system. In 1902, the American Society of Civil Engineers awarded him the Norman Medal for inventing a joint for submarine steel pipes.

C. Dolly Gray, 63, president and owner of the Ready-Mixed Concrete Corp., Indianapolis, Ind., and from 1920 to 1925 chief engineer of the Indiana State Highway Commission, died Nov. 6. He was a graduate of Rose Polytechnic Institute, and during World War I was a captain in the Engineer Corps.

Albert H. Smyth, 60, retired civil engineer of Seattle, Wash., died there Nov. 7. He had been a railroad contractor for many years, later becoming roadmaster for the Northern Pacific Railway at Tacoma, Wash.

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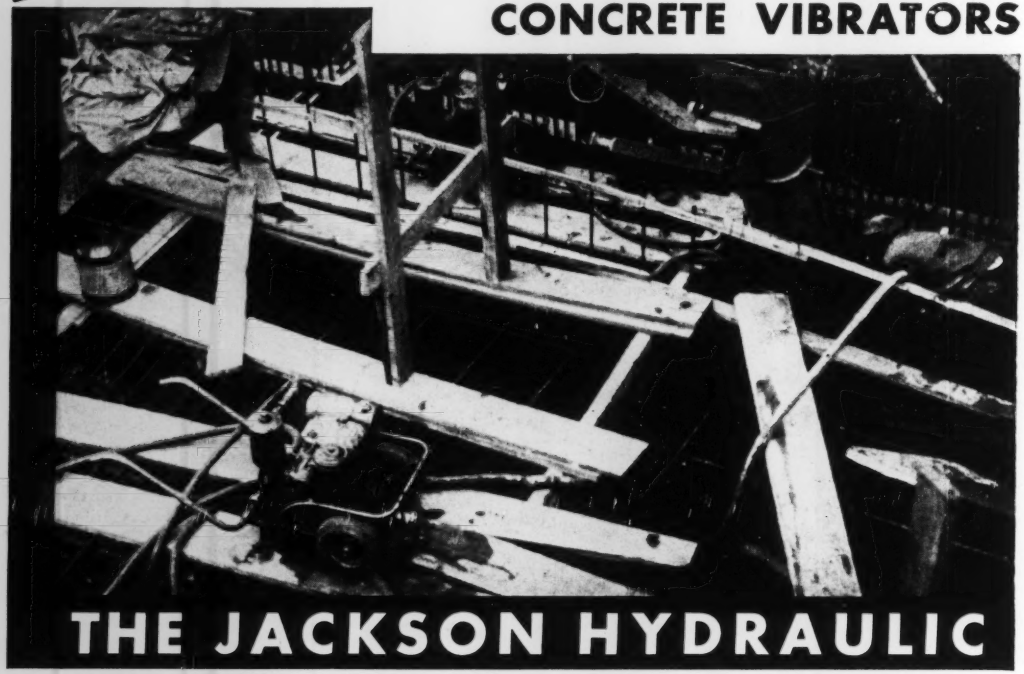

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UNIT PRICES BID BY CONTRACTORS

24-inch Pipeline for Metropolitan District Boston

Only three bidders competed for the 10,050 ft. of 24-in. concrete pipeline, Sept. 22, when bids were opened by Metropolitan District Commission, Karl Kennison, chief engineer, construction division.

Work must be completed 240 consecutive calendar days from start of project. Minimum wages under rule of state department of Labor and Industry are for skilled workers, $2.625, semi-skilled, $2, common $1.55. Contractor furnished all materials except manhole frames and covers, valves and meters. Job is two miles by highway from nearest railroad.

The low was 15 percent under the high bid.

1 Demos Bros. Co., Springfield, Mass. (Contr) $187,714
2 Baker & Co., Inc., Jamaica Plains, Mass. 207,040

Items	Quantity	Unit Prices 1	2
Stripping.....cy	300	$0.75	$0.50
Earth exc. & refill NE of sta. 6+00...cy	700	2.00	3.00
6+00 to 11+50...cy	500	2.00	2.50
11+50 to 19+70...cy	1,000	2.50	5.00
19+70 to 63+00...cy	4,500	2.00	2.50
63+00 to 75+75...cy	1,400	2.00	2.50
75+75 to 77+25...cy	400	3.00	4.00
77+25 to 81+25...cy	500	2.00	3.00
81+25 to 88+50...cy	800	2.25	3.00
88+50 to 90+60...cy	300	4.00	3.00
So. of 90+60.....cy	1,600	2.00	3.50
Rock excav.....cy	1,000	5.00	6.00
Soil dressing.....cy	350	1.00	1.50
Seeding & grass.....sy	1,500	.15	.12
Gravel.....cy	400	3.00	2.00
Cr. st. & scr. grav...cy	1,000	3.50	3.50
Furn., lay. 24" pipe...lf	10,050	9.00	10.50
Concrete.....cy	300	20.00	4.00
Reinf. steel.....lb	5,000	.12	.07
Portland cement....bbl	500	4.80	6.00
Vitr. clay pipe 8" or less.....lf	500	1.20	2.00
10-18".....lf	200	2.75	3.00
Misc. st. & ir.....lb	2,000	.50	.20
Galvanizing.....lb	500	.10	.30
C. I. pipe & spec....lb	70,000	.27	.20
Misc. non-fer. met...lb	800	1.00	1.00
Care for & set met. wk. furn. by Comm.lb	50,000	.10	.12
Concr. dr. pipe 8" or less.....lf	400	1.00	2.00
12" in diam.....lf	1,000	1.40	2.00
15" in diam.....lf	200	2.00	3.00
18" in diam.....lf	200	3.00	3.50
Brick masonry.....cy	75	75.00	60.00
Bitum. pave.....sy	8,000	1.25	1.00
Chg. water serv.....ea	40	12.00	10.00
Remov., care for & reset shubbery.....ls	.....	1000.00	200.00
Brook crossing.....ls	.....	2000.00	1000 00
Hwy. & Hwy. cross...ls	.....	1000 00	2500 00
St. car cross.....ls	.....	500 00	2000 00
Cleaning up.....ls	.....	500 00	2000.00
Perform. bond, rate/$1,000 bid		10.00	15.00

Sheet Asphalt Paving, Roslindale, Mass.

Ten bidders and close bidding featured the Albano Street paving letting by Public Works Department City of Boston for 31000 sq. yds. of sheet asphalt paving in Roslindale.

Completion date is Nov. 30, 1949. Minimum wages set by the State Commission of Labor and Industry are skilled, $2.625, semi-skilled $2, unskilled $1.55. All materials are furnished by the contractor. The job is 2 miles from the nearest railroad.

The low is 21 percent below the high bid but the 5 lowest bids are within 7 percent of each other.

1 Central Constr. Co., Roxbury (Contr.) $92,237
2 Baker & Co. Inc., Jamaica Plain 92,556
3-10 ranged from $96,241 to $116,903

Items	Quantity	Unit Prices 1	2
Excav., earth.....cy	2,240	$0.40	$0.40
Water box excav....cy	875	.50	.40
Rock & wall excav...cy	15	2.00	.40
Bank gravel.....ton	610	.50	.40
Crush stone.....ton	5	1.00	.40
Remove concr. base..sy	180	.40	.40
Remove pave.....sy	30,900	.20	.20
Str. edgestone.....lf	70	2.00	2.40
Reset edgestone.....lf	9,815	.23	.30
Concr. base.....cy	30	9.00	10.00
Bit. macad. base... sy	6,850	.85	.40
Granite bl. pave.....sy	650	2.75	2.00
Asphalt bndr, etc....sy	6,850	1.00	1.05

Traffic and Highway Lights At Bakersfield, Calif.

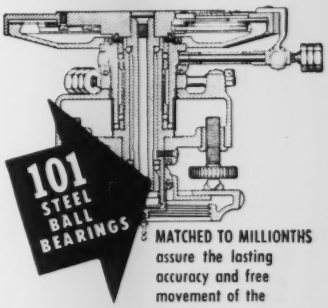
Prices on furnishing and installing traffic signal or street lighting systems at each of seven intersections on Route 4 in Bakersfield, were received September 28, 1949 by Division of Highways, Department of Public Works, State of California.

Work must begin within 15 days and be completed within 135 working days of approval of contract. All materials are to be furnished by the contractor except cadmium yellow primrose, dark olive green, and black finish paint, which the state supplies. Wage rates are: electrician $2.40, carpenter and cement finisher, each $2.20, concrete mixer operator, skip type, $2.00, flagman and laborer, $1.57, operator and tender of pneumatic and electric tools, $1.77. No detours available, traffic must be maintained through construction. Detectors for actuating traffic signal dispatches shall be either pressure sensitive or magnetic type. Traffic dispatchers have full traffic actuated controls. Photo-electric controls operate highway lights.

High of 5 bids was only 8½ percent above low bid. Lowest bidders were:

1 Ets—Hakin & Galvan, San Diego, (Contr)..... $41,871
2 Clinton Electric Corp., Los Angeles 42,432

The electrical systems are:	Lump Sum Prices 1	2
21st St.—exist. traffic actuated signal sys. revised & improved	$3,444	$3,370
24th St.—full traffic actuated signal sys. & 21,000 lumens hwy. lightg., instal.....	10,838	11,592
Railroad Crossing—train actuated 15,000 lumens flood light, instal. (to light r. r. car at crossing).....	1,222	1,080
Q St.—full traffic actuated signal sys. & 21,000 lumens lightg., instal.....	9,555	10,239
O St.—21,000 lumens hwy. lightg., instal.....	2,606	2,287
28th St.—full traffic actuated signal sys. & 21,000 lumens hwy. lightg., instal.....	11,555	12,097
H St.—21,000 lumens hwy. lightg., instal.....	2,601	1,766



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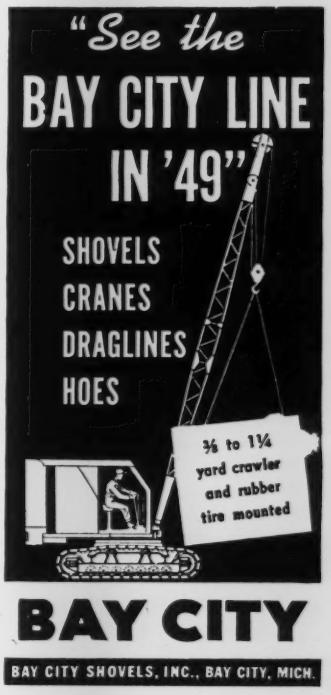

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

WATER SUPPLY

BIDS ASKED

November 29

O., Dayton—Comrs. Montgomery Co., Jessie B. Gano, clk., Courthouse, water and sewerage sys. in Herbert C. Huber Plat No. 16 south of Stroop Rd. in Van Buren Twp., Moraine Sewer Dist. Plans deposit $5.

November 30

Ky., Richmond—Richmond Water & Gas Wks., intake and water supply line from Blue Grass Ordnance Depot Lake, Madison Co. to City of Richmond's Lake Reba. Plans deposit $15. J. Stephen Watkins & Robert E. Martin, 210 Heyburn Bldg., Louisville, Zone 2, consult. engrs.

LOW BIDDERS

●**Calif., Pasadena**—City, Nov. 9, 50 m.g. Hastings Reservoir, from E. C. Nickel, 120 W. Sierra Madre Blvd., Arcadia, **$1,049,729.** Est. $1,400,000. CD 10/7.

Md., Towson—Bd. Comrs. Baltimore Co., Court House, Nov. 7, Contr. 175-S, Part A—4/680 lin. ft. 15- to 21-in. vitr. clay pipe and 1,890 lin. ft. 18 and 21 in. VCPX, from Columbia Constr. Corp., 16 W. 25 St., Baltimore, **$54,430*****Part B—3,040 lin. ft. 6- to 18-in. vitr. clay pipe, 1,930 lin. ft. 8 in. VCPX and 2,340 lin. ft. 14 in. c.i. pipe from J. Matricciani & Co., 409 S. Caroline St., Baltimore, **$40,576*****Part C—26x27 ft. rein.-con. brick sewage pumping station, etc., from Dickinson-Young Constr. Co., 11 E. 21 St., Baltimore, **$29,-900**, all above work in 8th and 9th Elec. Dist. CD 10/26.

Mass., Burlington — Town, Water Distr., Town Hall, Nov. 1, water sys., from S. Cali Constr. Co., 2 Spruce St., Fitchburg, **$98,138.** Whitman & Howard, 89 Broad St., Boston, engrs. CD 3/12/47.

Mass., Templeton — Town, Bd. Selectmen, Town Hall, Nov. 1, WW, and distr. sys., cement asbestos mains, copper services, and cement asbestos mains, wrought iron services, from Di Mascio Bros. & Co., 26 Everton St., Dorchester, **$176,548** and **$176,923** respectively; c. i. mains, copper services and c. i. mains, wrought iron services, from C. Jiustino, Inc., 36 Upland Ave., Dorchester, **$188,760** and **$197,010** respectively. CD 10/26.

†N. M., Albuquerque—U. S. Eng., Box 18538, Nov. 1, water supply sys., Stage VI, Sandia Base, Serial No. Eng-29-005-50-10, from Chicago Bridge & Iron Wks., 1308 Hunt Bldg., Tulsa, Okla., Unit 1 **$83,350.** CD 10/21.

Pa., Erie—City, Bureau Water, 708 French St., Nov. 14, WW imprvs., from R. W. Reznor Assoc., 1717 Investment Bldg., Pittsburgh, **$423,781.** Est. $500,000. CD 10/14.

Tex., Fort Worth—City, Nov. 12, constructing 36 in. West Side water supply line from Holly water plant to west side pump station, from J. D. George Co., 3331 Parkwood St., Houston, **$116,038.** Est. $139,000. Freese & Nichols, 407 Danciger Bldg., engrs.

Tex., McAllen—City, Nov. 1, WW addns. from Mitchell Darby Constr. Co., Box 479, Pharr, **$28,300.** Est. Approx. $50,000. CD 10/21.

CONTRACTS AWARDED

Md., Hyattsville — Washington Suburban Sanitary Comn., Hamilton St., approx. 24,850 ft. 42 in. supply line from Willis School Filtration Plant, near Laurel, to Columbia Pike, near Paint Branch, Prince Georges and Montgomery Counties, Contr. 694-W, to Nance & Vivadelli, 2420 Wilson Blvd., Arlington, Va., **$639,878.** Bids 10/31, awarded 11/8. CD 11/3, under LB.

SEWERS, WASTE DISPOSAL

BIDS ASKED

November 28

●**Ind., Washington** — Bd. P. Wks., sewage treatment plant, sewerage sys. and pump. stations, $1,500,000. Plans deposit $50. Bevington, Taggart & Fowler, 730 Ind. Fythian Bldg., Indianapolis, consult. engrs. CD 10/9.

December 6

S. C., Clinton—Town, sanitary sewer imprvs. Approx. $50,000. Harwood Beebe Co., Spartanburg, engr. CD 4/12/46.

December 7

Ga., Valdosta—City, City Hall, sewage treatment plant. Approx. $200,000. Smith & Gillespie, Roberts Bldg., Jacksonville 1, Fla., engrs.

SOON LETS CONTRACT

Ore., Portland—City, City Hall, furnishing, erecting steel covers for digestion tanks at city's sewage treatment plant, from Consolidated Western Steel Corp., 141 Battery St., San Francisco, Calif., **$89,613.** CD 7/20/45.

Tex., San Antonio—City, City Hall, Military Plaza, cancelled bids to have been opened Nov. 3, 7,500 lin. ft. 18 in. pipe, manholes, etc., appurtenances, Salado Creek Sanitary Sewer Main, Sect. 6, Carrity Rd. Branch, **$75,000.** CD 10/24.

CONTRACTS AWARDED

Ala., Bay Minnette—City, sewage treatment plant, to Sullivan-Long & Hagerty, 2014 2 Ave. N., Bessemer, Birmingham, **$106,687;** exten. sewer lines, to Arthur Pew Constr. Co., Buckhead Theater Bldg., Atlanta, Ga., **$140,-749.** Bids 11/8. CD 10/25.

Conn., Bridgeport — City, Mayor Jasper McLevy, City Hall, sewage disposal plant, incl. sludge storage tanks, vacuum filters, incinerator, renovate 7 tide gates, Bostwick Ave. Plant, West End, to Harry Maring, Jr., Inc., 536 Lindley St., **$554,710.** Bids 10/28. CD 11/4, under LB.

Fla., Jacksonville Beach—City, City Hall, erecting treatment plant and outfall line, to Ivy H. Smith Co., 1525 San Marco Blvd., Jacksonville, **$219,517.** Bids 10-31, awarded 11/7. CD 10/12.

Tex., Buffalo—City, City Hall, sanitary sewers, Purchase and Hire. Approx. **$58,000.**

Tex., San Antonio—Blanco Road Development Corp., Gunter Bldg., sanitary and storm sewers, to G. W. Dickerson & Sons, 1543 W. Kings Hy., Approx. **$54,000.** Reynolds Andricks, Milam Bldg., engr.

Tex., San Antonio—E. J. Burke & Sons, 4220 S. Zarzamora St., storm sewers, to R. E. Lanham, 715 E. Josephine St., Approx. **$75,000.** Harmon & O'Donnell, Temple Court Bldg., Denver, Colo., project engrs.

BRIDGES

BIDS ASKED

December 8

N. J., Jersey City—Port of New York Auth., 111 Eighth Ave., New York, 11, N. Y., concrete deck and approaches for exit viaduct for Holland Tunnel, Contr. HT-13, to Grow Constr. Co., Inc., 212 W. 52 St., New York, 19, N. Y. **$779,560.** Bids 10/31. CD 11/2, under LB.

December 15

†**Oregon**—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., double-leaf bascule bridge across navigation lock at McNary Dam on Columbia River.

LOW BIDDERS

†**Georgia**—U. S. Engs., P. O. Box 1169, Mobile 7, Ala., Nov. 9, superstructure and roadway for Allatoona Creek Crossing, Bethany Rd., Bartow Co., from Montgomery Constr. Co., Bell Bldg., Montgomery, Ala., **$197,898.** CD 10/24.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $28,000; other public works $50,000; industrial buildings $68,-000; other buildings $250,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	

Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.;

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published. On projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
● Project of $1,000,000 or over.
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

●**Indiana**—State Hy. Dpt., Indianapolis, Nov. 10, bridge over East Fork of White River, Bartholomew Co., from R. L. Schutt Co., 215 E. New York St., Indianapolis, **$697,077,** est. $895,588***bridge over Salamonie River, Jay Co. from Denison & Garber & A. L. D., Rochester, **$173,270,** est. $242,544***bridge over creek 1.7 mi. S. of U.S. Rd. 35 and bridge over Wildcat Creek, 0.7 mi. N. of U.S. Rd. 35, Howard Co., from John R. Gates, 2410 Springfield St., Fort Wayne, **$104,466,** est. $134,714 and **$122,718,** est. $149,027 respectively*** twin structures over U.S. Rte. 6 and Hobman Ave. and overhead bridge, Harrison Ave., 0.5 mi. E. of Illinois-Indiana State Line, Lake Co., from Arcoll Midwest Corp., Evanston, Ill., **$179,117,** est. $236,468 and **$740,089,** est. $954,-920 respectively***bridge from C. & E. I. Ry., to 0.2 mi. east of Montezuma, Parke-Vermillion Counties, from Calumet Paving Co., Zionsville, **$256,245,** est. $269,181***bridge over Grant Creek, Wabash Co., from Moellering Constr. Co., 241 Murray St., Fort Wayne, **$64,961,** est. $80,189. CD 10/14.

O., Cleveland—Wheeling & Lake Erie Ry. Co., H. F. Whitemore, ch. engr., Public Square Bldg., Nov. 10, bridge over Cuyahoga River, main bridge substructure, from George Vane, Inc., Grant Bldg., Pittsburgh, Pa., **$189,780*****main bridge superstructure, from McDowell Co., Inc., 3203 W. 71 St., **(1A) $800,-730, (1B) $899,730***east approach substructure, from Hunkin-Conkey Constr. Co., 202 St. Clair St., **$68,088***east approach superstructure, from American Bridge Co., 71 Broadway, New York 6, N. Y., **(1A) $48,375, (1B) $50,130.** Hardesty & Hanover, 101 Park Ave., New York, N. Y., engrs. CD 9/30.

Pa., Pittsburgh—Comrs. Allegheny Co., County Office Bldg., Contr. 6, McKeesport-Glassport approach and wid'n. Monongahela Ave., Dravosburg Bridge 14, from Larry Constr. Co., 137 Jefferson Dr., **$587,145.** Est. $600,000. CD 9/18/46.

†**Wash., Bridgeport**—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, Nov. 8, 1,146 ft. steel bridge across Columbia River, between Chief Joseph Dam site, CIVENG-45-108-50-20, from Guy F. Atkinson Co., Skinner Bldg., Seattle, Zone 1, **$946,620,** Est. $908,947. CD 10/11.

CONTRACTS AWARDED

●**Maryland**—State Hy. Dpt., Baltimore, substructure Severn River Bridge Annapolis By-Pass, Project A.A. 263-2-315, Anne Arundel Co., to Merritt-Chapman & Scott Corp., 17 Battery Pl., New York, N. Y., **$3,349,800.** Bids 10/25. CD 10/31, under LB.

●**Maryland**—State Hy. Dpt., Baltimore, Contract CBB-10-11-87-Scheme B, Island Piers 23 and 24, 138 ft. long, 150 ft. wide, Sand Islands, rip rap stone sloper protection, Chesapeake Bay Bridge, Anne Arundel and Queen Anne Counties, to Construction Aggregates Corp., 1 E. 42 St., New York, N. Y., **$1,878,750.** Bids 9/1. CD 9/7, under LB.

Oklahoma—State Hy. Dpt., Oklahoma City, concrete, steel underpass on Gertie Ave. under A. T. & S. F. Ry. Co. in Perry Co., to Darrin Co., C. Layman & Sons, Riverside Dr., Tulsa, Zone 3, **$74,548** est. $74,722***concrete, steel bridge over Grief Creek on farm-to-market road at Wetumka, Hughes Co., to O. R. Gragg, Henryetta, **$53,491** est. $59,492***concrete, steel bridge over Shell Creek at Raiford, McIntosh Co., to J. B. Biles Constr. Co., McAlester, **$50,841** est. $57,451***concrete, steel bridge over an arm of the Port Gibson Reservoir, near Hulbert, Cherokee Co., to Brewer-McMichael, Inc., Holdenville, **$51,657** est. $60,681. Grand total $230,537. Bids 11/8, awarded 11/9. CD 11/2.

Oregon—State Hy. Comn., Salem, 400 ft. rein.-con. viaduct over Southern Pacific tracks near Eugene on Richardson-Eugene Hy., Lane Co., to Glen Snook, Eugene, **$71,260.** Bids 11/8. R. H. Baldock, c/o owner, engr.

Manitoba—Province of Manitoba, Winnipeg, substructure of Bridge over Med River, Emerson, to Carter Constr. Co., Winnipeg. **$112,025.**

STREETS AND ROADS

BIDS ASKED

December 15

†**Oklahoma**—U. S. Eng., P. O. Box No. 61, Tulsa, Zone 2, access road to Fort Gibson Dam and power house. $75,000.

LOW BIDDERS

Ill., Chicago — City, Dpt. Purchases, Contracts & Supplies, City Hall, Nov. 7, paving S. Western Ave., from W. 119 to W. 111 Sts. (S.A. 55-0101CS), from American Asph. Paving Co., 9701 S. Torrence St., **$78,826.** CD 11/1.

Mass., Boston—City, P. Wks. Dpt., City Hall Annex, Nov. 3, sheet asph. paving Arlington St., etc., Brighton, from Dooley Bros., Inc., 39 George St., Roxbury, **$81,346.** CD 10/27.

(Continued on page 83)

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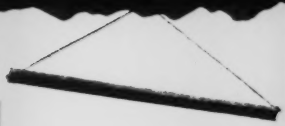

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GMC TRUCKS

(Continued from page 80)

New Jersey—State Hy. Dpt., Trenton, Nov. 10, constr. 1.268 mi. Amwell Rd., Fed. Aid Sec. Proj. S-100 (1), Hillsborough Twp., Somerset Co., from S. Fitzer Paving Co., Phillipsburg, **$49,960.** CD 10/26.

Oregon—State Hy. Comn., Salem, rejected bids Nov. 8, 16,030 cu. yd. crushed rock on Whiskey Creek-East Forest Boundary sect. Klamath Falls-Lakeview Hy., Klamath and Lake Counties. L. B. **$57,270.** R. H. Baldock, c/o owner engr.

Oregon—State Hy. Comn., Salem, Nov. 7, grading 5.54 mi., surf., oiling 5.67 mi. furnishing 2,000 cu. yd. crushed rock on Wamic-Tygh Valley sect. of Wamic county road, furnishing 10,000 cu. yd. crushed rock on Dufur-Maupin sect. The Dalles-California Hy., FAPS-94 (1), Wasco Co., from Vernie Jarl, Gresham, **$138,997.** R. H. Baldock, c/o owner, engr.

CONTRACTS AWARDED

La., Crowley — City, 104,000 sq. yd. soil cement base, 6,200 tons b. conc. wearing surf. certain designated streets to Barber Bros. Constr. Co., P. O. Box 629, Baton Rouge, **$184,931.** Bids 11/8. CD 10/25.

La., Shreveport—City, paving Fennick St., Anniston and Stuart Aves., to Flennliken Constr. Co., 3820 Florence Ave., **$50,079.** Bids 10/25.

Oklahoma—State Hy. Dpt., Oklahoma City, c. conc. 1.66 mi. U. S. 62 at Fort Gibson, Cherokee Co., to Brewer-McMichael, Inc., Holdenville, **$72,327** est. $85,711***stabil. base and double bit. surf. course 4.92 mi. U. S. 59, south of Heavener, LeFlore Co., to Public Constr. Co., Barnes Bldg., Muskogee, **$134,621** est. $156,785***b. conc. surf. course 5.001 mi. Hy. 2 south of Red Oak and Wilburton, Latimer Co., to Metropolitan Paving Co., 1600 W. Reno St., Oklahoma City, Zone 4, **$219,243** est. $271,369***c. conc. 1.255 mi. State Hy. 23 south of Bartlesville, Washington Co., **$101,738,** force account (bids rejected). Grand total $557,929. Bids 11/8. CD 11/2.

Oregon—State Hy. Comn., Salem, grading, surf., oiling 1.26 mi. Fisher Rd-Oak Hill sect. Richardson-Eugene Hy., Lane Co., to Inter-City Sand & Gravel Co., Eugene, **$50,780;** grading, surf., bit. macad., exten. box culvert and wid'n. concrete bridge, furnish 2,000 cu. yd. crushed rock on Squally Hook-Huinton sect. Columbia River Hy. 5.88 mi. FAP FI-24 (5), Gilliam Co., to A. H. Saxton & Sons, Corvallis, **$386,701.** Bids 11/8.

Oregon—State Hy. Comn., Salem, regrading, surf., oiling 16.28 mi., furnishing 2,000 cu. yd. crushed rock on Sherars Grade-Grass Valley sect. of Sherars Bridge Hy., FAP S-92 (2), Sherman Co., to Edwin Garber, Oregon City, **$171,291.** Bids 11/7. R. H. Baldock, c/o owner, engr.

Tex., Beaumont—City, City Hall, street program rehabilitation of South Park and Calder Terrace, force account. **$50,000.** CD 2/11.

Tex., Beeville — Bee Co., Beeville, road reconstr., surf., force account. **$65,000.** Bob Beasley, c/o owner, engr.

Tex., Charlotte—Atascosa Co. Road Dist. 4, Jourdanton, 15 mi. road imprv., drainage, surf. Owner builds. Approx. **$125,000.** CD 6/16.

Tex., Cooper — Comrs. Delta Co., Court, Cooper, road constr., improving, drainage, surf., Precinct 1, **$77,000;** Precinct 2, **$85,000;** Precinct 3, **$75,000,** force account. Grand total $237,000. CD 8/8.

Tex., Houston — Monarch Realty Co., 5308 Carrollton St., asph. paving, to L. J. Fruhardt, 2400 Navigation St., **$53,000.** CD 10/4.

Tex., San Antonio—Bexar Co. Courthouse, repairing, grading, reconditioning, surf. roads Precinct 1, **$88,000;** road reconditioning, grading, surf. and bridge, Precinct 2, **$115,000,** force account. Russell White, co. engr.

Tex., San Antonio—Blanco Road Development Corp., Gunter Bldg., street constr. and asph. paving, to McElwrath Bros., 439 Fresno St. Approx. **$60,000.** Reynolds Andricks, Milam Bldg., engr.

Tex., San Antonio—E. J. Burke & Sons, 4220 S. Zarzamora St., street grading and asph. paving, to R. E. Lanham, 718 E. Josephine St. Approx. **$80,000.** CD 11/3.

EARTHWORK, WATERWAYS

BIDS ASKED

November 30

†Illinois—U. S. Eng., 826 U. S. Courthouse & Custom House, St. Louis, 1, Mo., road surfacing on levee Prairie du Rocher, Illinois and vicinity (Edgar Lakes and Prairie du Rocher & Modoc Drainage and Levee Districts) Proj. Item 11-C, Randolph Co., Serial No. CIVENG-23-065-50-33. Extended date. CD 11/2.

About December 1

†Illinois—U. S. Eng., 826 U. S. Courthouse & Customhouse, St. Louis, Zone 1, Mo., approx. 6,000 lin. ft. earthen levee, 1 drain, approx. 3,500 lin. ft. storm sewer, approx. 3,500 lin. ft. drainage ditch; removal certain sewer lines, manholes, valve boxes, Grand Tower Drainage & Levee Dist., Jackson Co., along river front at Grand Tower, east bank of Miss. River between approx. river miles 78.7 and 80, above mouth of Ohio River, Proj. Item I-B.

December 8

†Kansas—Bureau Reclamation, Dpt. Interior, Bldg. 1A Denver Federal Center, Denver, Colo., structural steel, incl. arches, hangers, ties,

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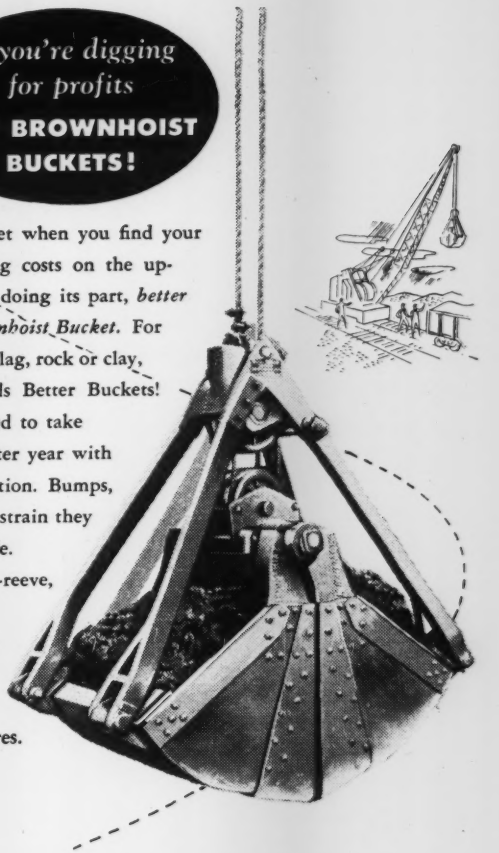

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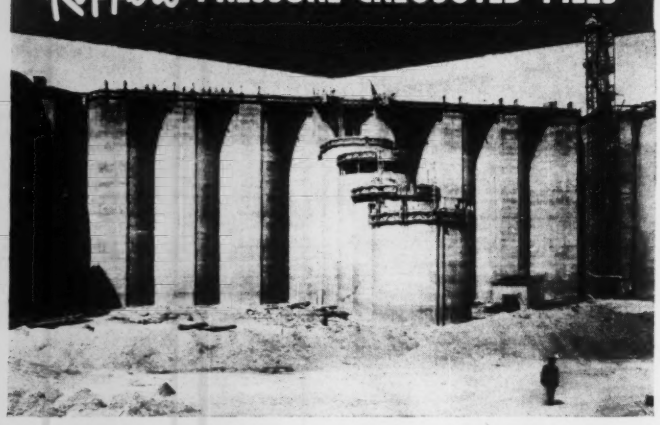

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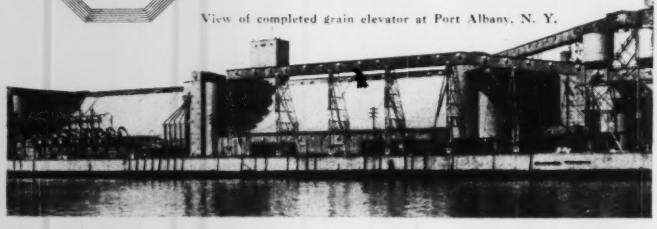

floor beams, bracing, bearings, expansion joints, and field rivets and bolts for spillway bridge at Cedar Bluff Dam, Missouri River Basin Proj., Cedar Bluff Unit, Spec. 2831.

December 15

†**Kentucky**—U. S. Eng., 302 U. S. Courthouse, Nashville, Tenn., freight elevator for Wolf Creek Power Plant, Cumberland River. Serial No. CIVENG-40-058-50-16.

About February 28

†**Illinois, Kentucky, Missouri, Tennessee**—U. S. Eng., P. O. Box 97, Memphis, 1, Tenn., bank protection work on Mississippi River between Cairo, Ill. (mile 966 AHP) and Cottonwood Point, Mo. (Mile 835 AHP) incl. 5,500 lin. ft. in Wickliffe, Ky., (963 AHP); 7,000 lin. ft. in Beckwith Bd., Mo. (934 AHP); 5,500 lin. ft. in Hickman-Reelfoot, Ky., (930 AHP); 5,000 lin. ft. in Reelfoot Front, Ky. (927 AHP); 4,000 lin. ft. in Slough Ldg., Tenn. (906 AHP); 12,000 lin. ft. in Merriwether Bend, Tenn. (876 AHP); 3,900 lin. ft. in Ch. of Island 8, Ky. (919 AHP); 1,500 lin. ft. in Gayoso-Caruthersville, Mo. (850 AHP). Serial CIVENG-40-041-50-75.

LOW BIDDERS

†**North Dakota**—U. S. Eng., 1217 U. S. Post Office and Customs House, St. Paul 1, Minn., reservoir clearing, Stage 2, Baldhill Reservoir, Sheyenne River, Inv. No. CIVENG-21-018-50-15, from Bill Curphy Co., 447 Insurance Exchange Bldg., Des Moines, Ia., **$67,440.** Est. $70,700. CD 10/21.

†**Washington**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., Nov. 3, aluminum creat railings with lighting Columbia Basin proj. Grand Coulee Dam, Spec. 2806, from Seidelhuber Iron & Bronze Works, Inc., 1421 Dearborn St., Seattle, Wash., **$194,983.** CD 10/21.

CONTRACTS AWARDED

†**Nebraska**—Bureau Reclamation, Dpt. Interior, Arapahoe, earthwork, canal lining and structures for Cambridge Canal, Station 676 plus 00 to 1012 plus 52 **and earthwork and** structures for drains and channel changes, Frenchman-Cambridge Div., Missouri River Basin Proj., Spec. 2775, to Bushman Constr. Co., 5 and Felix Sts., St. Joseph, Mo., **$600,568.** Bids 9/30, awarded 11/4. CD 10/10, under LB.

●†**North Dakota**—U. S. Eng., Fort Lincoln, Box 300, Bismarck, excavation and main embankment, Stage III, Garrison Dam and Reservoir, Riverdale, Serial No. CIVENG-32-015-50-16, to Peter Kiewit Sons Co., 1024 Omaha Natl. Bank Bldg., Omaha, Neb., and Morrison-Knudsen Co., Inc., 319 Broadway, Boise, Idaho, **$5,740,500.** Bids 10/18. CD 10/25, under LB.

Tex., San Antonio—Blanco Road Development Corp., Gunter Bldg., site grading and development, to McElwrath Bros., 439 Fresno St. Approx. **$36,000.** Reynolds Andricks, Milam Bldg., engr.

AIRPORTS AND AIRBASES

BIDS ASKED

November 29

†**Maryland**—AIRPORT IMPRVS.—U. S. Eng., First and Douglas Sts. N. W., Wash., 25, D. C., ground control approach facilities at Andrews Air Force Base, CIVENG 49-080-50-4-(4)

December 2

†**Va., Langley Field**—LABORATORY, etc.—National Advisory Com. for Aeronautics, Langley Air Force Base, gas dynamics and internal flow laboratory, incl. gas dynamics bldg., rotating machines bldg., compressor station, office and assembly area, structures of steel and concrete, Giffels & Vallet, Inc., and L. Rossetti, 1000 Marquette Bldg., Detroit 26, Mich., assoc. engrs. and archts.

LOW BIDDERS

†**Mass., East Boston**—RADAR BLDGS.—Dpt. Commerce, CAA Federal Bldg., International Airport, Jamaica, N. Y., Oct. 31, 2 prefabricated radar bldgs. at Logan Airport, East Boston, Serial-1-50-534, from Modern Constr. Co., P. O. Box 173, Mattapan, **$50,356.** CD 4/13/48.

N. J., Newark—APRON PAVING, etc.—The Port of New York Auth., 111 Eighth Ave., New York 11, N. Y., Nov. 10, apron paving and drainage at Newark Airport, Contr. NA-19, from Union Bldg. & Constr. Co., 631 Main Ave., Passaic **$91,550.** CD 10/27.

SOON LETS CONTRACT

●**Tex., Fort Worth**—RUNWAYS—City, W. O. Jones, mgr., Fort Worth, Contr. 2, runways, etc. at Fort Worth Greater International Airport, to T. L. James & Co., Ruston, La., **$1,557,454.** Est. approx. $1,009,000. Bids 10/27. CD 11/1, under LB.

PUBLIC BUILDINGS

BIDS ASKED

November 29

●**Ill., Decatur**—SCHOOLS—Bd. Educ., Grant, Oak Park and Hess Park Schools, $1,693,500. Charles Harris & Assoc., Decatur, archts. CD 10/7.

Mich., Ferndale—SCHOOL—Bd. Educ., 1 story, brick, block, rein.-con. school and 7 school addns. $800,000. Bids 10/19 rejected. CD 10/3.

Ont., Ottawa—SCHOOL—G. E. Haram, secy., Public School Bd., 330 Gilmaur St., school, Main Ave., Approx. $550,000. C. Burgess, 53 Queen St., archt. CD 9/29.

(Continued on page 87)

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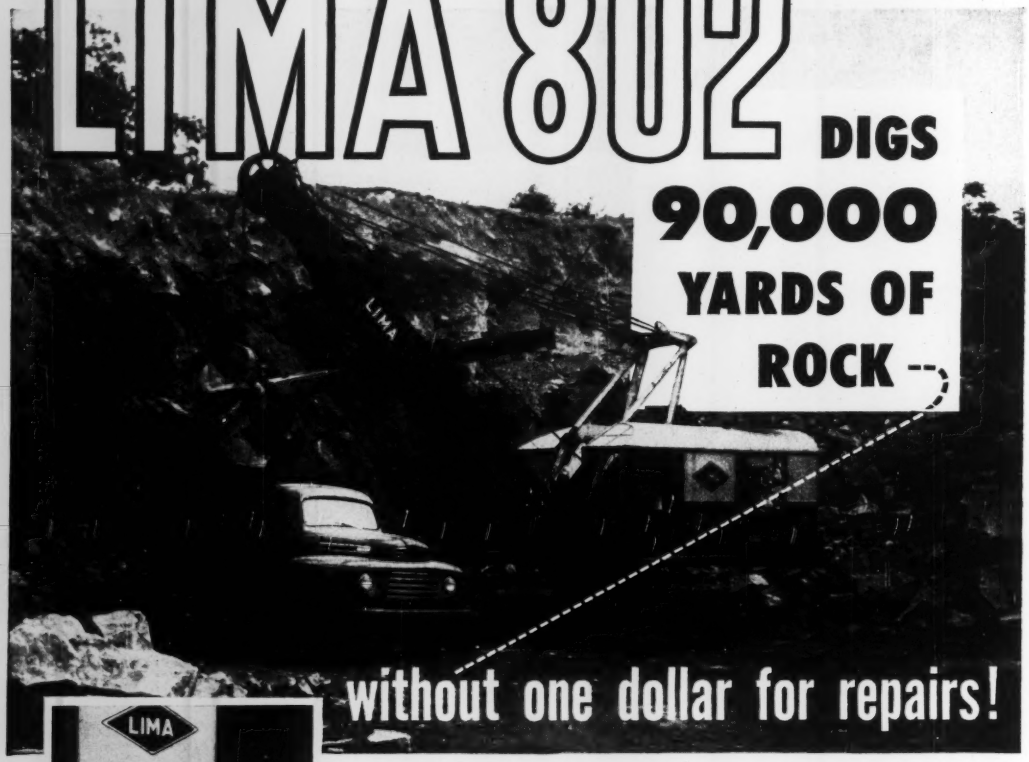

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LIMA, OHIO

OTHER DIVISIONS: *Lima Locomotive Works Division; Niles Tool Works Co.; Hooven, Owens, Rentschler Co.*

LIMA HAMILTON CORPORATION

(Continued from page 84)

December 2

Ga., Rome — HOME — State Dpt. Public Health, State Office Bldg., Atlanta, nurse's home at Battey State Hospital, Harvey & Elliott, Rome, archts.

December 5

Pa., O'Hara Twp. (near Sharpsburg) — SCHOOL—School Dist. O'Hara Twp., Kittanning Rd., Sharpsburg, 1 story, brick on tile back up, steel beam Montrose school, **$350,000.** Plans deposit $10. Bowers & Barbalat, 534 Bakewell Bldg., Pittsburgh, archts. CD 10/22/48.

Que., Lachute — SCHOOL, etc. — Lachute Catholic School Comn., R. Urbaini, secy., 2 story, bsmnt., 58x245 ft., 24 classroom school and gymnasium, rein.-con. fdns. and walls, St. Mary St. Approx. $450,000. M. Champagne, Lachute Mills, archt.

December 6

La., Amite—CITY HALL, etc.—Town, city hall and jail. Plans deposit $10. Porter, Barry & Switzer, 211 Main St., Baton Rouge, archts.

●†**N. M., Albuquerque**—LABORATORY—U. S. Eng., Box 1538, 120,000 sq. ft. A-19 laboratory, Serial No. Eng-291-50-24. $1,250,000. Plans deposit $50. CD 10/11.

O., Wilmington—GARAGE—Dpt. P. Wks., S. O. Linzell, dir., Ohio Dpt., Bldg., Columbus, highway garage. H. G. Allen, c/o owner, archt.

Wash., Yakima—SCHOOL—School Dist. 126, Tieton View School, pt. 2, 1 story, 112x294 ft., rein.-con. Mountain View school with low pressure steam heating system, ventilating, $277,500. Plans deposit $50. J. W. Maloney & J. H. Whitney, Larson Bldg., archts. CD 6/21.

December 9

●**Calif., Berkeley** — JURISPRUDENCE — Bd. Regents University of California, Berkeley, general work, electrical work, plumbing, heating and ventilating and elevators, 3 story L-shaped rein.-con., structural steel School of Jurisprudence Bldg., $1,000,000. Plans deposit $50. Warren C. Perry, 260 California St., San Francisco, archt. Harold B. Hammill, 381 Bush St., San Francisco, engr. CD 8/24/44.

Early in January

Ont., London—SCHOOL—Bd. Educ., E. N. Winder, chn. Building Com., 70 Dundas St., 3 story, bsmnt., 150x175 ft., rein.-con. Technical School addn. $850,000. R. Scholes, c/o owner, archt.

January 3

●**Tex., Lamarque** — HOSPITAL — Galveston Co., Courthouse, Galveston, hospital, $1,000,000. Charles L. Zweiner, Cotton Exchange Bldg., Galveston, archt. Golemon & Rolfe, 915 Windrow St., Houston, engrs. CD 11/24/48.

LOW BIDDERS

Mass., Northampton— BOILER — Commonwealth of Mass., Dpt. Mental Health, 100 Nashua St., Boston, Nov. 4, boiler addn. to State Hospital, M-111 Contr. 1, from The Merrill Co., Inc., 98 Granite St., South Boston, **$89,400.** CD 11/29/46.

Mass., Plymouth — HOUSING — Town, of Plymouth Housing Auth., Town Hall, Nov. 2, 40 unit veterans housing, Olmstead Terrace, from Hayes & Watkins Constr. Co., 583 Pleasant St., Brockton, **$397,660.** CD 10/26.

Mass., Walpole — SCHOOL — Town, Stone School Bldg. Comn., Town Hall, Nov. 3 Grade and Junior High School, from Eisenburg-Marden Corp., 755 Boylston St., Boston, **$425,900.** Conrad & Young, Inc., 33 Union St., East Walpole, engr. CD 10/26.

Mich., Mt. Pleasant — PHYSICAL EDUCATION—State Div. Bldgs., Dpt. Administration, Lansing, Nov. 8, general contract, physical education bldg., Central Michigan College, from Strom Constr. Co., 625 1 St., N. W., Grand Rapids, **$659,900.** CD 10/26.

Miss., University — DORMITORY — State Bldg. Comn., New Capitol Bldg., Jackson, Nov. 1, girls dormitory, from Building Service Co., West Point, **$294,213.** CD 10/26.

†**Montana** — SUBSTATION, etc. — Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., Nov. 3, one 6,000-kva., one 1,500-kva., one 1,000/1,150-kva. unit substations with transformers, Schedule (1) Hungry Horse Power Plant, Hungry Horse Proj., Spec. 2794, from ITE Circuit Breaker Co., 19 & Hamilton Sts., Phila., Pa., **$91,039.** CD 10/25.

Mont., Kalispell—GYMNASIUM—Flathead Co. High School Dist., Nov. 10, gymnasium annex for Flathead Co. High School, from A. R. Elliott Constr. Co., Kalispell, **$409,937.** CD 10/27.

N. Y., Albany—HALL—Dpt. Educ., State Education Bldg., Nov. 9, general contract, Draper Hall addn., from Panzieri-Henderson, Inc., Terminal St., **$597,129.** CD 10/12.

O., Springfield—HIGH SCHOOL—Bd. Educ., Springfield, general contract Schaefer Junior High School imprvs., from Fry Constr. Co., Greenville, **$173,411.** CD 3/9.

Tex., Dallas—SCHOOL—Independent School School Dist., Akard and Royal Sts., Nov. 8, 40,000 sq. ft. Preston Hollow Public School, from Vivrett & Vivrett, Southland Life Bldg. Annex, **$585,085.** Est. $450,000. CD 10/4.

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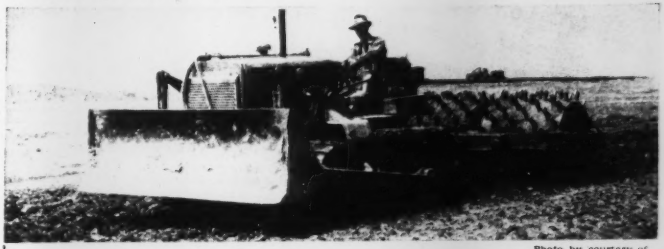

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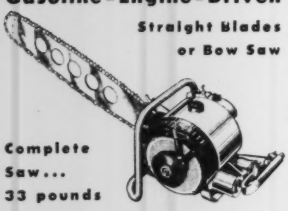

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†**Wyoming**—GARAGE—Bureau Reclamation, Dpt. Interior, Region 7, New Customhouse, Denver, Colo., rejected bids Sept. 29, one 24-car government storage garage at Reclamation Center, near Casper, Spec. R-82 (Region 7). CD 9/14.

†**Wyoming**—GARAGE, etc.—Bureau Reclamation, Dpt. Interior, Casper, rejected bids Oct. 6, furnishing, erecting steel garage and machine shop at Reclamation center at Casper, Spec. R-7-84 (Region 7). CD 9/22.

CONTRACTS AWARDED

†**California**—POWER HOUSE—Bureau Reclamation, Dpt. Interior, Redding, completing lower vista house, powerhouse adit., elevator lobbies at Shasta Dam, Central Valley Proj., Spec. 2769, to Haas & Rothschild, 274 Brannan St., San Francisco, Calif., **$73,197.** Bids 9/27, awarded 11/7. CD 10/5, under LB.

Conn., Bristol—HOUSING—City of Bristol Housing Auth., Fred O. Zurrell, chn., 40 duplex frame houses MR 21, 80 family units, Cambridge Park, to De Fonce Constr. Co., 110 Colonial St., Bridgeport, **$792,450.** Bids 10/25. CD 11/1, under LB.

●**Mich., Northville**—HOSPITAL—Dpt. Admin., Bldgs. Div., 115 State Office Bldg., Lansing, Medical Unit, Clinical Hospital, Northville State Hospital, to O. W. Burke Co., 1032 Fisher Bldg., Detroit, Zone 2, **$2,362,500;** mechanical trades for above bldg., to Drake-Avery Co., 414 Marquette Bldg., Detroit, Zone 26, **$761,230.** Bids 9/27. CD 10/11, under LB.

●**Ore., Salem**—OFFICE—State Hy. Comn., State Office Bldg., Salem, office bldg., to Sound Constr. & Eng. Co., 1403 W. 45 St., Seattle, Wash., **$1,559,931.** Bids 11/17, awarded 11/9. CD 1/1/10, under LB.

Pa., West View—STORE AND OFFICE—Municipal Auth. of West View, 414 Perry Hy., 2 story, 60x281 ft. brick, tile, steel store and office, to J. M. Baldwin Co., Whitfield Bldg., Pittsburgh, Approx. **$250,000.** Bids 9/14. CD 8/24.

N. S., Halifax—NURSES RESIDENCE—Dpt. Hys. & P. Wks., rein.-con., brick, sandstone nurses residence at Victoria General Hospital, to Brookfield Constr. Co., Ltd. 32 Inglis St., Halifax, Approx. **$300,000.** C. St. J. Wilson, Ray Bldg., archt. Bids 10/24. CD 10/12.

Ont., Cornwall—HIGH SCHOOL—Cornwall Suburban High School Area, L. Martini, secy., suburban high school in East Cornwall, to Sullivan & Son, Armprior, Approx. **$473,556.** Bids 11/1. CD 10/17.

Que., Hull—PRINTING BUREAU—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., footings and piers for National Printing Bureau, to The Concrete Constr. Co., Ltd., 1082 Decarie Blvd., Montreal, Approx. **$160,000.** Bids 11/9. CD 11/1.

COMMERCIAL BUILDINGS

BIDS ASKED

November 29

Tex., Houston—STORE—J. Weingerten, Inc., 808 Prairie St., store, **$750,000.** Finger & Rustay, 711 Natl. Standard Bldg., archts. CD 9/29.

December 15

Ga., Sea Island—BEACH CLUB—The Sea Island Co., c/o Abreau & Robeson, archts., 406½ Gloucester St., Brunswick, beach club, $300,000. Extended date. CD 11/10.

About January 2

●**N. Y., New York**—HOSPITAL—Mount Sinai Hospital, 5 Ave. and 100 St., hospital, **$7,000,000.** Kahn & Jacobs, 2 Park Ave., Zone 16, archts. Fred M. Severud, 415 Lexington Ave., Zone 17, engr. CD 10/2/47.

SOON LETS CONTRACT

Ark., Arkadelphia—EDUCATIONAL—First Baptist Church, Arkadelphia, soon lets contract 3 story, masonry educational, $300,000. Bruce R. Anderson, Wallace Bldg., Little Rock, archt.

Ind., Lafayette—CHAPEL—Most Rev. Jno. G. Bennett, Bishop of Lafayette Diocese, 610 Lingle Ave., soon lets contract 1 story, bsmnt., 58x124 ft. chapel for St. Thomas Aquilas R. C. Church, $250,000. CD 11/7.

Tenn., Cleveland—CHURCH—First Baptist Church, c/o Selmon T. Franklin, archt., 421 Poplar St., Chattanooga, soon lets contract church. CD 11/9, under LB.

Ont., Toronto—HOSPITAL—Mathers & Haldenby, archts., 15 St. Mary St., soon lets contract St. John's Convalescent Hospital addn., Cummer Ave., Newtonbrook, for Sisters of St. John the Devine, Cummer Ave., North York. Approx. $700,000. CD 3/2/48.

LOW BIDDERS

Calif., La Jolla—HOSPITAL—Scripps Memorial Hospital, La Jolla, Nov. 2, 2 story, rein.-con. hospital addn., from R. J. Daum Constr. Co., 5803 West Blvd., Inglewood, **$394,000.** CD 10/13.

Ill., Chicago—HOSPITAL—Provident Hospital & Training School, 426 E. 51 St., Zone 15, 2 story, brick, concrete, steel laundry, operating room, hospital addns. and 6th floor alterations, from B. W. Construction Co., 39 S. LaSalle Ave., Zone 3, **$250,000.** Schmidt Garden & Erickson, 104 S. Michigan Ave., Zone 3, archts. CD 10/19.

Pa., Avalon—APARTMENTS—Chestnut Manor, Inc., Box 391, Coraopolis, three 3 story bsmnt., 43x117 ft., brick apartments, to

(Continued on page 90)

DeSalvo Construction Company, Cincinnati, Ohio, is extending Wright Road in that city. The job consists of moving approximately 800,000 cubic yards of earth and laying 3 miles of 4-lane divided concrete roadway. Cost, over $2,000,000. This contractor reports outstanding results with Gulf lubricants and fuels.

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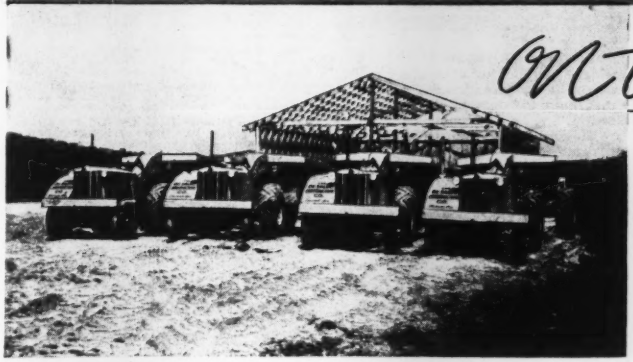

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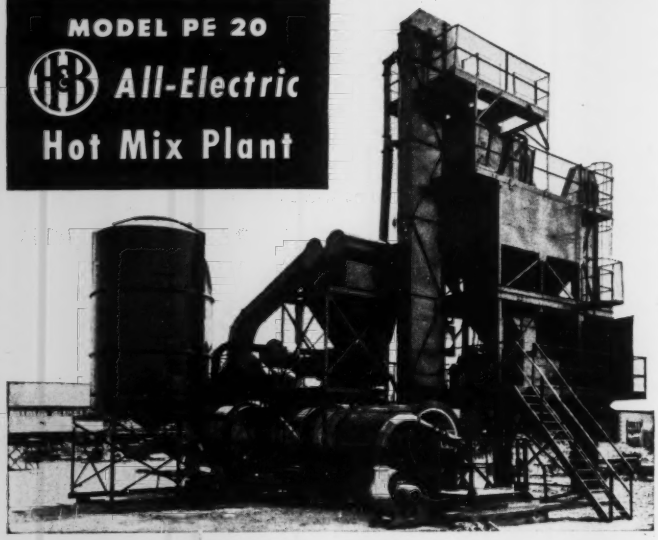

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(Continued from page 88)

Mountaineer Eng. Co., Sharon Grade Rd., Coraopolis. Apprx. **$250,000.** Philip Friedman, 121 S. Negley St., Pittsburgh, archt.

Tenn., Memphis—CHURCH—Temple Baptist Church, c/o low bidder, remodel church, from H. F. Vann & Sons, 1089 Galloway Ave., **$354,000.** CD 10/13.

Tex., Longview—CHURCH—First Baptist Church Congregation, Longview, Nov. 8, church, from J. A. Sharrock, Marshall, **$547,000.** Wilson, Morris & Crain, 3330 Graustark St., Houston, archts. W. P. Moore, 4605 Montrose Blvd., and H. E. Bovary, Jr., 531 Niels Esperson Bldg., Houston, engrs. CD 2/14.

CONTRACTS AWARDED

●**Ala., Montgomery**—HOMES—H. M. Davis, c/o contractor, 451 homes in Mobile Heights Section for colored, to Folmar & Flynn, 2323 S. Court St., **$2,250,000.**

Ark., North Little Rock—HOMES—Wallace E. Johnson Co., 875 Raynor St., Memphis, Tenn., 84 homes. Owner builds. Approx. **$400,000.**

Calif., Arcadia—DWELLINGS—South Arcadia Park, Inc., 9244 Olympic Blvd., Beverly Hills, 76 frame, stucco dwellings, Milsaap and Freer Sts. and Marshbaurn and Tyler Aves., to Lusk & Pierce, 9244 Olympic Blvd., Beverly Hills. Approx. **$546,000.** David **Freedman**, 407 Commercial Center, Beverly Hills, archt.

Colo., Denver—HIGH SCHOOL—Parish of the Blessed Sacrament, Rev. Harold V. Campbell, 4930 Montview Blvd., general contract 2 story, brick high school, to Kirchhof Constr. Co., 700 Lawrence St., Denver***plumbing and heating, to Slattery & Co., 1726 Market St., Denver***electrical work, to Wazee Electric Co., 1318 Marion St., Denver. Approx. **$253,000.** Est. $250,000. Bids 11/12. CD 10/24.

Fla., Daytona Beach—APARTMENT UNITS—M. T. Mossberg, Daytona Beach, 60 apartment units. Owner builds. **$400,000.** David A. Leete, Daytona Beach, archt.

Fla., Fort Lauderdale—APARTMENT DEVELOPMENT—Victor Nurmi c/o contractor, apartment development, to Porter Constr. Co., 428 E. Las Olas Blvd., Approx. **$250,000.**

Fla., Fort Lauderdale—APARTMENT DEVELOPMENT——Wilson Garden Apartments, c/o T. A. Meyer, archts., 1257 E. Las Olas Blvd., apartment development, Owner builds. **$250,000.**

Fla., Key West—HOMES—Charles Toppins & Sons, Key West, 40 homes. Owner builds. Approx. **$300,000**

Fla., Miami—HOMES—Victory Homes of Florida, Inc., 847 N. E. 125 St., Miami, 45 homes. Owner builds. Approx. **$250,000.**

Fla., North Miami—HOMES—Berger-Dawson Constr. Co., 1100 N. E. 125 St., 50 homes. Owner builds. Approx. **$350,000.**

Fla., North Miami—HOMES—Harvey Constr. Co., Inc., 1408 S. W. Dixie Hy., 109 homes. Owner builds. Approx. **$500,000.**

Fla., Stuart—HOMES—Broadway Builders, Stuart, 50 homes. Owner builds. Approx. **$300,000.**

Ga., Decatur—HOMES—T. C. Holmes & Son, Inc., 2964 N. Decatur Rd., 20 homes. Owner builds, **$275,000.**

Ill., Chicago—APARTMENTS—Owner, c/o Carl J. Kastrup, archt., 7346 Madison Ave., Forest Park, two 5 story, brick, concrete, 60 unit apartments, 2600 W. Berwyn St., Zone 25, to Republic Constr. Co., 173 W. Madison St., Zone 3, **$260,000.**

Ill., Palatine—RESIDENCES — Palatine Homes, c/o Harold A. Stahl, archt., 111 W. Monroe St., Chicago, Zone 3, fifty-one 1 story, rein.-con., brick residences, to Greene & Gust, 1154 Lunt Ave., Chicago, Zone 26, **$450,000.**

Md., Baltimore — RESIDENCES — Pallad Constr. Co., 641 Aldershot Rd., thirty-three 2 story, bsmnt., brick, block residences, 4900 Block Aldershot Rd. Owner builds. **$300,000.**

●**Md., Patuxent (Br. Wash. D. C.)**—APARTMENTS—Yards & Docks, Navy Dpt., Arling-

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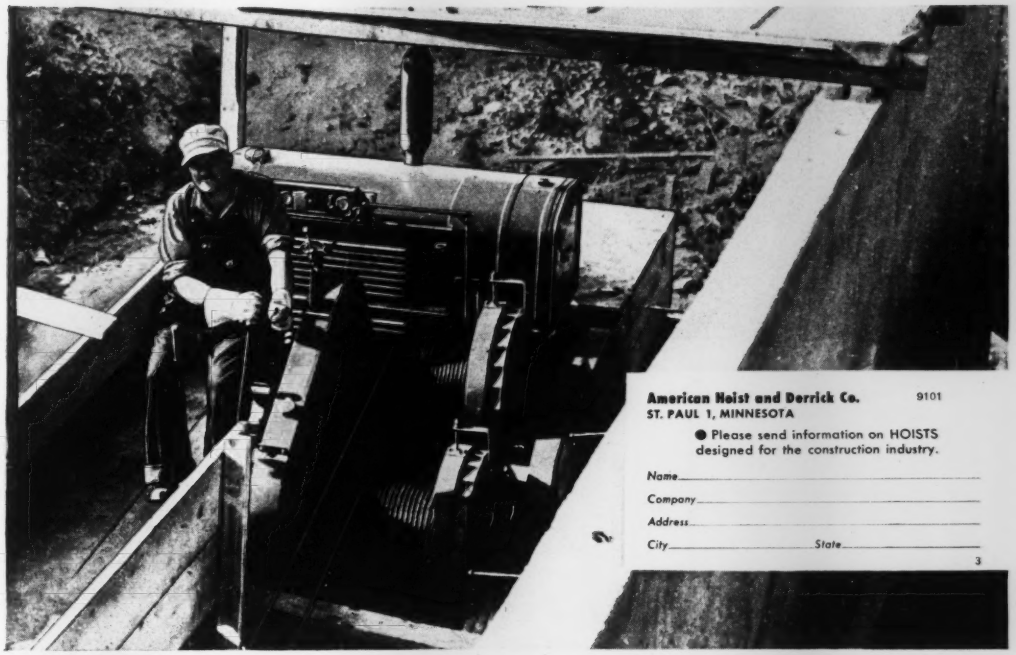

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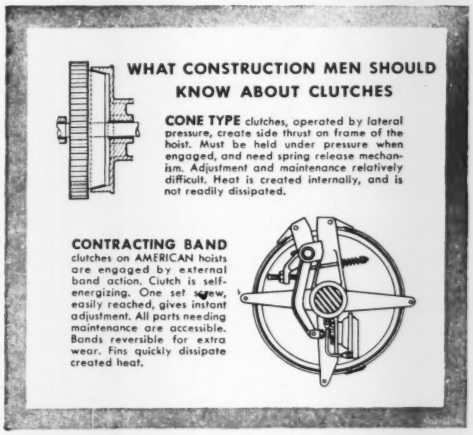
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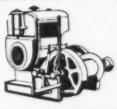

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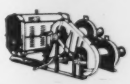

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ton, Va., construct, manage and finance 200 family apartment bldgs., at Patuxent River Naval Airport Station, to Patuxent Gardens, Inc., c/o R. H. Bailey & Robert Greene, North Broadway, Amityville, N. Y. Approx. **$2,000,000.**

Mass., Brookline-Newton—STORE—Brookline-Newton Realty Co., c/o A. Shactmen, 295 Washington St., Boston, design and construction superstructure, 1 story, basmt., 110x220 ft., brick suburban department store, to Austin Co., 19 Rector St., New York, N. Y. William Filene's Sons Co., 426 Washington St., Boston, lessee, Raymond Loewy Assoc., 580 5 Ave., New York, N. Y., archts.

●**Mich., Ann Arbor**—APARTMENTS—Jeffress-Dyer, Inc., 90x 20 St. N. W., Wash., D. C., two 10 story bldgs on 5½-acre tract bounded by Washtenaw Rd. and Stadium Blvd. Owner builds. **$4,500,000.**

●**N. Y., New York** — HOSPITAL — Columbia Presbyterian Medical Center, 116 St. and Broadway, hospital alterations, to Robert Glenn, Inc., 101 Park Ave., Zone 17. Bids 10/7. CD 9/26.

Pa., Latrobe—APARTMENTS—Stella Shirley Apartments, Inc., Box 472, one 2 story 55 x 49 ft. and two 30 x 130 ft. apartments, irregular shaped, brick, Walnut and Chestnut Sts. Owner builds. **$300,000.** Phillip Friedman, 121 S. Negley Ave., Pittsburgh, archt.

Pa., Pittsburgh — APARTMENTS — King Park, Inc., 16 First St., Sharpsburg, 2 three story, basmnt., brick, concrete, steel apartments, King St., to O. H. Martin Co., 18 1 St., Sharpsburg, Approx. **$360,000.** C. A. Lake, 203 Highland Terrace, Fox Chapel, Pittsburg, archt.

●**Pa., Pittsburgh** — APARTMENT — Leland Corp., 1159 Prospect Rd., 21 two and 3 story, brick, block apartments, at Baldwin Twp., near here. Owner builds. Approx. **$2,500,000.** Phillip Friedman, 121 S. Negley St., archt.

S. D., Sioux Falls—DORMITORY, etc.—North American Baptist Theological Seminary, Sioux Falls, dormitory and classroom, to Sioux Falls Constr. Co., 264 Boyce Greeley blk., **$300,000.** Bids 7/20.

Tenn., Memphis—BUILDING—Young Men's Christian Assn., c/o contractor, Y.M.C.A. bldg., to W. A. Whitsitt Constr. Co., 795 Walnut St. Approx. **$300,000.** CD 2/26/47.

Tenn., Nashville—BANK—Commerce Union Bank, c/o contractors, bank, to R. E. Dunn & Co., Stahlman Bldg., Approx. **$250,000.**

Tenn., Nashville—HOMES—R. M. Condra, Jr., Maxwell House, 50 homes Normandy Circle. Owner builds. Approx. **$420,000.** CD 10/31.

Tex., Bellaire—MERCANTILE—Meyer Bros., 1511 Preston Ave., Houston, mercantile, to F. L. Gallup & Sons, Pasadena, Approx. **$260,000.** CD 9/13.

●**Tex., Dallas** — DWELLINGS — Vernon & James Smith, Liberty Bank Bldg., 450 dwellings, in portion Wynnewood Park. Owner builds. **$3,250,000.** CD 11/7.

Tex., Fort Worth—COMMUNITY CENTER—J. E. Foster & Sons, 1100 Blk. Summit St., community center. Owner builds. Approx. **$250,000.** CD 11/2.

Tex., Fort Worth — CHURCH — Broadway Presbyterian Church, Broadway, church, to Thomas Byrne Constr. Co., Fort Worth Natl. Bank Bldg., Approx. **$450,000.** C. O. Chromaster, Century Bldg., archt. Carter & Burgess, Century Bldg., struc. engrs.

●**Tex., Houston**—APARTMENTS—Bayou Park Apartments, Inc., c/o Joseph B. Reynolds, engr., 2518 Times St., 65 two story, 296 unit apartments, off LaPorte Rd., to Carl C. Sharp, 2422 Wordsworth St. Approx. **$1,650,000.** CD 11/11.

Tex., Houston — APARTMENT — King & Sheets Co., City Natl. Bank Bldg., 75 apartment units. Owner builds. Approx. **$600,000.** CD 10/13.

Tex., Houston—DWELLINGS—United States Constr. Co., 6835 Avenue V, 60 dwellings. Owner builds. Approx. **$360,000.** CD 11/3.

Tex., Houston — HOUSING — Meadowbrook Housing Co., 7801 Howard Dr., housing, Meadowbrook sub-division. Owner builds. Approx. **$175,000.** CD 11/7.

Tex., Houston — DWELLINGS — Robertson Constr. Co., 7500 Joplin St., 50 dwellings, Holmes Rd. Owner builds. Approx **$300,000.** CD 11/3.

Tex., Houston — HOUSING — Robertson Constr. Co., 1533 Gardenia St., housing, Lum Terrace, etc. Owner builds. Approx. **$250,000.** CD 11/1.

●**Tex., Lubbock**—DWELLINGS—L. Payne & T. Jenkins, Highland Place, Inc., c/o L. Payne Lumber Co., 114 N. College St., 123 duplex dwellings, to B. T. Jenkins & Son, Lubbock. Approx. **$1,600,000.** CD 11/11.

Tex., Port Neches—HOUSING—M & M Building Materials & Supply Co., Port Neches, housing, own forces. Approx. **$250,000.** CD 11/7.

Tex., San Antonio — DWELLINGS — Haby Seay, Inc., 1420 W. Summit St., 40 dwellings, own forces. Approx. **$280,000.** CD 10/27.

Tex., San Antonio — HOUSING — Mission Constr. Co., Frost Bank Bldg., housing, own forces. Approx. **$350,000.** CD 11/7.

Tex., San Antonio—HOUSING—Low-Cost Homes Building Co., 413 N. Alamo St., housing. Owner builds. Approx. **$250,000.** CD 10/27.

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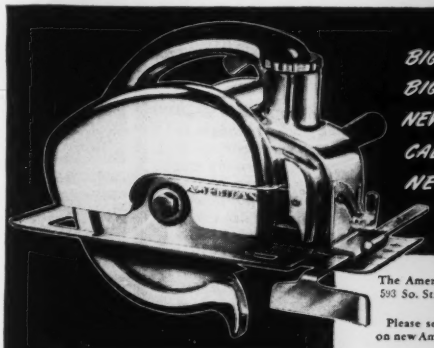

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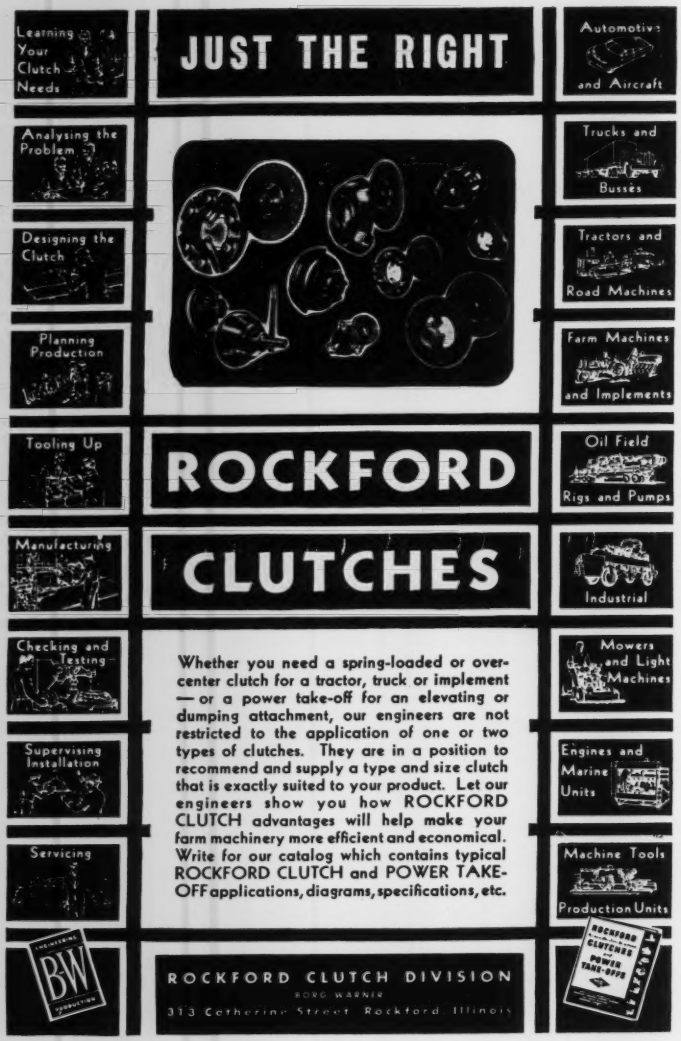
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Tex., San Antonio—RESIDENCES—Albert Hirschfeld, Milam Bldg., and Wm. Ochse, Alamo Natl. Bldg., 100 residences, Basse Rd., own forces. Approx. **$475,000.** CD 8/8.

●**Man., Winnipeg**—HOUSES—Frank Lount & Son, 1000 Lynn St., 500 houses in St. James sub-division, own forces. Approx. **$3,200,000.** CD 9/6.

Ont., Hamilton—HOSPITAL WING—Sisters of St. Joseph, 204 Park St. W., 4 story, 132x175 ft. L-shaped, rein.-con., steel 100 bed maternity wing, at St. Joseph's Hospital, Charlton Ave. E., to Pigott Constr. Co., Ltd., Pigott Bldg. Approx. **$500,000.** W. R. Souter & Assoc., Pigott Bldg., archts.

Que., La Malbaie—CHURCH—Roman Catholic Parish of La Malbaie, Church, La Malbaie, church, to Asselin & Tremblay, La Malbaie, Approx. **$250,000.** CD 8/4.

INDUSTRIAL BUILDINGS

BIDS ASKED

About November 25

Pa., Pittsburgh—FREIGHT TERMINAL—Motor Freight Express, Inc., York, 1 story, 50x140 ft., brick, rein.-con. freight terminal, 65x200 ft. platform, Western Ave. $100,000. Van Rensselear Saxe, 100 W. Monument St., Baltimore, Md., engr.

November 29

Ga., Augusta—SALES AND SERVICE—Ware Buick Co., c/o Kuhlke & Wade, archts, Campbell Bldg., auto sales and service bldg. Approx. $75,000.

December 6

Tex., Galveston—PLANT—Lipton Tea Co., 2325 Strand St., tea plant. $500,000. E. H. Thornton, c/o owner, engr. CD 11/14.

CONTRACTS AWARDED

Calif., Baldwin Park—PLANT—Arcadia Rock & Sand Co., 1903 N. Peck Rd., rein.-con. rock and sand plant. Owner builds. **$270,000.**

Ga., Atlanta—WAREHOUSE, etc.—Estate of J. D. Jacobs, c/o contractor, warehouse and office, to Wesley & Co., Inc., 285 Hunnicutt N.W., Approx. **$68,000.**

Ga., Columbus—BUS TERMINAL—Howard Bus Lines, Inc., c/o contractor, bus terminal, to Williams Constr. Co., 1632 13 St., Columbus. Approx. **$75,600.**

La., Shreveport — LABORATORY — United Gas Pipeline Co., c/o contractor, research laboratory, to Werner Co., 1320 Pierre Ave., Shreveport. Approx. **$300,000.** Bids 11/1. CD 9/15.

Md., Bladensburg—WAREHOUSE, etc.—J. J. Haines & Co., 33 Hopkins Pl., Baltimore, 1 story, concrete, steel, brick, cinder block, 165x177 ft. warehouse and office to Wm. Lipscomb Co., Woodward Bldg., Wash., D. C., Approx. **$300,000.** V. R. P. Saxe, 100 W. Monument St., Baltimore, engr.

O., Columbiana—FACTORY—F. C. Russell Co., 6400 Herman St., Cleveland, 40x60 ft. factory addn. for storage purposes, east end of plant and other addn. to west end, to Earl Newell, Columbiana. CD 10/14.

O., Sycamore — GRAIN ELEVATOR — Sycamore Mill & Supply Co., Sycamore, 300,000 bu. concrete, wood grain elevator, to Neiderkohr Bros., Carey.

Pa., Pittsburgh—PLANT, etc.—Iron City Sand & Gravel Co., Grant Bldg., 75x160 ft. cement mix plant, garage, general office to Pittsburgh Industrial Eng. Co., 3939 Butler St., Approx. **$400,000.**

Pa., Pittsburgh—FOUNDRY, etc.—Union Steel Castings Co. Div. Blaw Knox Co., 62 and Butler Sts., 1 story 50x675 ft., steel frame foundry and machine shop, separate contracts, **$250,000.**

Tenn., Chattanooga—STORAGE AND PIPE SHED—Mills & Lupton Supply Co., c/o contractor, heavy storage and pipe shed bldg., to John Martin Co., 1851 Central Ave., Approx. **$68,000.**

Tex., Beaumont—SHIP BUILDING PLANT—Bethlehem Steel Co., Island Park, ship building plant expansion, own forces. **$375,000.** CD 12/30/47.

Tex., Bryan—PLANT—Palermo Gin Co., Bryan, cotton gin plant, own forces. Approx. **$75,000.**

Tex., Houston—PIPEMILL FACILITIES—A. O. Smith Corp., M. Esperson Bldg., storm and sanitary sewers, railway tracks inside 208x675 ft. mill plant, area grading, paved roads, parking areas, lighting sys. for Mill zone, crane runways, water sys., etc., to The Austin Co., M & M Bldg., **$475,000.** CD 10/19.

Utah, Salt Lake City—WAREHOUSE—Utah Power & Light Co., Kearns Bldg., warehouse, to Vincent-Peterson Constr. Co., 312 Dooly Bldg., Approx. **$122,000.** Bids 11/4. Ashton, Evans & Brazier, 24 S. West Temple St., archts.

Va., Roanoke—SALES AND SERVICE—Antrim Motors, Inc., c/o contractor, auto sales and service bldg., to B. F. Parrott & Co., Bailey Bldg., Approx. **$150,000.**

W. Va., Charleston—WAREHOUSE—Sears, Roebuck & Co., c/o contractor, 3rd unit warehouse, to Leonard W. Harris, Edgewood Acres, Charleston. Approx. **$120,000.**

●**Ont., Windsor** — PLANT — Chrysler Corp. of Canada Ltd., Drouillard Rd., exten. plant 2, 320x520 ft. with 2 story section 40x160 ft.,

(Continued on page 96)

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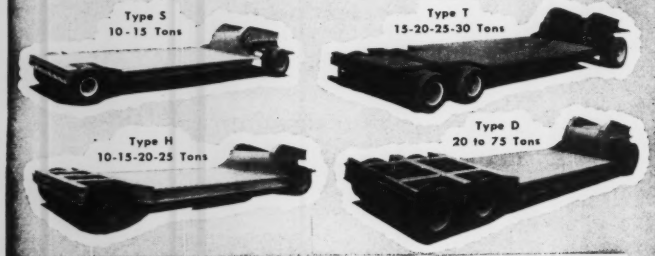

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(Continued from page 94)

structural steel, brick, rein.-con. fdn., to Pigott Constr. Co., Ltd., Pigott Bldg., Hamilton. Approx. **$1,750,000.** W. R. Souter & Assoc., Pigott Bldg., Hamilton, archts.

Que., Drummondville—PLANT, etc.—Optical Mfg. Co., 28 Mahler Rd., Roslindale, Boston, Mass., 40x60 ft., plant and office, to Benjamin Robidas, 164 Du Moulin St., Approx. **$100,000.** CD 11/3.

Que., Lachine—WAREHOUSE—Daly & Morin, Ltd., 19 Ave., warehouse addn. to window shade factory, to Louis Donalo, Inc., 85 Jean Talon St. W. Montreal, Approx. **$100,000.** Luke & Little, 1410 Guy St., Montreal, archts.

UNCLASSIFIED

BIDS ASKED

November 29

Wis., Green Bay—SWIMMING POOL, etc.—Bd. Park Comrs., 400 E. Walnut St., swimming pool and bath house at Fisk Park. Foeller, Schober, Berners, Safford & Jahn, 310 Pine St., archts. CD 9/1.

November 30

Colorado — RURAL DISTRIBUTION LINES—Mountain View Electric Assn., 500 Exchange Natl. Bank Bldg., Colorado Springs, 255.37 mi. rural distr. lines in Lincoln, Elbert, Washington, Douglas and El Paso Counties, $275,000. C-H Eng. Co., 25 S. Grove St., Denver, engr. CD 5/13.

Ont., Toronto—HARBOR IMPRV.—J. M. Somerville, secy. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., harbor imprvs. Approx. $60,000. R. Blais, c/o owner, engr. CD 10/4.

December 6

†**Wyoming**—STRUCTURAL STEEL—Bureau Reclamation, Dpt. Interior, Casper, misc. structural steel for new Casper substation, Kendrick Proj., Spec. R7-93 (Region 7) L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo., ch. engr.

December 7

Calif., Sacramento—TRAFFIC SIGNAL SYSTEM, etc.—State Div. Hys., P. Wks. Bldg., traffic signal sys. and hy. lighting intersectional imprvt. on Stockton Blvd. at Fruitridge Rd. G. T. McCoy, state hy. engr.

December 8

California — TRAFFIC SIGNAL SYSTEMS, etc.—State Div. Hys., 120 S. Spring St., Los Angeles, traffic signal systems, intersection lighting on San Fernando Rd. at Rt. 213 South, Bernard Blvd., Maclay Ave., Worman St., Hubbard St., and Rt. 213 North and on Rte. 213 at Bernard Blvd., Los Angeles and San Fernando, Los Angeles Co. G. T. McCoy, Sacramento, state hy. engr.

December 13

†**Montana**—TURBINES—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Louisville, three 23,500 hp. hydraulic turbines for Canyon Ferry Power Plant, Canyon Ferry Unit, Missouri River Basin Proj. Spec. 2814. Extended date. CD10/25.

LOW BIDDERS

Calif., Los Angeles—PARK BUILDINGS—City, City Hall, Nov. 3, steel, reinforced brick clubhouses at Queen Anne, Green Meadows, and Baldwin Hills Playgrounds, from Hardwick & Son, 2254 Cahuenga Blvd., **$221,098.** Est. $210,000.

Texas—RURAL DISTRIBUTION LINES—Kimble Electric Co-operative, Inc., Junction, Nov. 1, 172 mi. rural distr. lines, Edwards Co., from H. B. Zachry Co., Box 2570, San Antonio, labor $56,168, materials by owners **$106,000,** total $162,168. CD 10/14.

CONTRACTS AWARDED

Missouri—RURAL DISTRIBUTION LINES—Ozark Electric Co-operative, A. Claypool Dougherty, mgr., Mount Vernon, 325.32 mi. rural dist. lines, 111.5 mi. conversions in Dade, Greene, Jasper, Lawrence, Christian, Barry and Stone Counties, to Reinhart & Donovan Co., Commercial Exchange Bldg., Oklahoma City, Okla., **$535,130.** Bids 9/23 under LB. CD 10/7.

N. Y., New York—FIELD HOUSE—Columbia University, 116 St. and Broadway, field house, 533 W. 218 St., to Hegeman Harris Co., Inc., 220 E. 42 St., Zone 17, **$466,000.** Bids 10/27. CD 10/19.

South Dakota — RURAL DISTRIBUTION LINES—Central Electric Co-operative, Blunt, 434 mi. rural distr. lines, Hughes Co., to Philard, Inc., Huron, **$507,309.** Bids 8/30, awarded 10/18. CD 9/14, under LB.

Texas—RURAL DISTRIBUTION LINES—Lyntegar Electric Co-operative, Tahoka, rural distr. lines and sys. imprvs., Lynn Co., to Electric Supply & Service, 608 Turner St., Hobbs, N. M., labor **$12,805,** materials **$40,000,** total $52,805. Awarded 11/3. Price & Hawk, 1509 13 St., Lubbock, engrs. CD 12/15/48.

Tex., Alvin—GAS LINE—Stanolind Oil & Gas Co., Gulf Bldg., Houston, 18 mi. 6 in. gas line, to W. Golightly Constr. Co., 6302 Esperson St., Houston, Approx. **$75,000.**

Tex., Conroe — COUNTY FAIR IMPRVS. — Montgomery Co., c/o Fair Assn., Conroe, terracing, drainage, earthen tanks, revetments. Owner builds. **$90,000.** CD 2/11.

Tex., Dallas — RADIO STATION — Texas Baptist, Inc., Baptist Bldg., radio station bldg. (FM Station KYBS) to L. R. Bowden Co., E. Grand Ave., Approx. **$75,000.**

Tex., San Antonio—GAS LINES—City Public Service Bd., 201 N. St. Marys St., 8,200 lin. ft. 8 in. and 17,800 lin. ft. 2- to 8-in. tie gas lines, Purchase and Hire. Approx. **$115,000.** CD 10/6.

Alta., Calgary—TOURIST CAMP—P. Salleneack, 203 8 Ave., tourist camp, to S. Wilson, 5730 Second St., Calgary. **$90,000.**

Ont., Almonte — RINK, etc. — Municipality, concrete, brick, steel community rink and auditorium, Bridge St., to Fred Larose, Almonte. Approx. **$100,000.** Ahra & Assoc., 55 Metcalfe St., Ottawa, archts.

Man., East Kildonan—DRIVE-IN THEATER —Tallmans Ltd., 678 Dufferin Ave., Winnipeg, drive-in theater, Owner builds. **$150,000.**

PROPOSED PROJECTS

WATER SUPPLY

O., Fremont — City, expan., modernizing water filtration plant. **$780,000.** Consoer, Townsend & Assoc., 351 E. Ohio St., Chicago, Ill., consult. engrs. CD 2/12/47.

Wash., Seattle — City, County-City Bldg., Zone 4, 30 and 42 in. watermain from Maple Leaf reservoir to N. 125 St. and Aurora Ave. **$425,000.** R. W. Finke, city engr. CD 7/12/45.

Sask., Yorkton—Municipality, waterline from the Saskatchewan River and Reservoir. **$300,000.** Harold Bailey, engr.

SEWERS, WASTE DISPOSAL

● **Ala., Birmingham** — Jefferson Co., Courthouse, reconstructing and exten. sanitary sewers. Proj. 1, Village Creek Connector, **$4,130,000.** Polk, Powell & Hendon, Chamber of Commerce Bldg., engrs.; Proj. 2, diversion tunnel, **$990,000,** Polglaze & Basenberg, Empire Bldg., engrs.; Proj. 3, Enaley Sewage Treatment Plant, **$4,414,000,** J. W. Goodwin Eng. Co., 726 S. 29 St., engrs.; Proj. 4, Bessemer Treatment Plant, **$803,000,** Polglaze & Basenberg, Empire Bldg., engrs.; Proj. 5, Homewood Griffin Creek, **$325,000,** Proj. 6, Mountain Brook Tunnel, **$38,500;** and Proj. 7, outfall sewer Bessemer, **$108,000,** Polk, Powell & Hendon, Chamber of Commerce Bldg., engrs. foregoing projects. Total cost Approx. $10,-xxx,500. Alvord, Burdick & Howson, 20 N. Wacker St., Chicago, Ill., consult. engrs. CD 8/12.

Ark., Mountain Home—City, sewerage and ww. sys. **$250,000.** Max A. Merhlburgher, Pyramid Bldg., Little Rock, consult. engr. CD 7/30/45.

Ill., Norris City—City, voted bonds sewage disposal plant and water sys. **$150,000.**

Minn., Cambridge—State Dpt. Admin., P. T. Peterson, dir. Purchases, 10 State Capitol, St. Paul, and Village of Cambridge, S. R. Broniche, clk., sewage disposal facilities for village and State Colony for Epileptics. **$198,050.** R. D. Thomas & Assoc., 400 Metropolitan Life Bldg., Minneapolis, consult. engrs. CD 2/7/45.

Wash., Bellevue—King Co. 3 Point Sewer Dist., voted bonds, sewerage sys. to serve Yarrow Point, Hunts Point and Evergreen Point. **$300,000.** H. H. Sisler & Phil Bessor, City Hall, Kirkland, consult. engrs. CD 10/4.

Wash., Tacoma—City, City Hall, 6 mi. sewer mains in area near Lincoln Heights. **$142,810.** D. E. Morris, city engr.

Wash., Tekoa — City, City Hall, disposal plant and sytem. **$107,000.** W. L. Malony, Symons Bldg., Spokane, consult. engr.

Ont., Cobden—Town, R. A. Parr, clk., sewer and disposal plant and present sewer to be cleaned, disposal plant and sewer connection to disposal plant and cleaning present sys. Approx. **$123,200.** G. G. Reid, 264 Avenue Rd., Toronto, engr. CD 3/1/46.

BRIDGES

● **Md., Baltimore** — City, Bureau Hys., 303 Municipal Bldg., bridge over Colgate Creek, steel span, hy. sheet asph. over concrete base, to carry Broening Hy. **$1,000,000.** Turpin, Wachter & Assoc., 1004 N. Charles St., and Jas. H. McKay, 303 Municipal Bldg., hys. engrs. CD 2/17/45.

● **Washington**—State Hy. Dpt., W. A. Bugge, dir., Olympia.

Grays Harbor Co.—bridge over Chehalis to replace old West Bridge, Aberdeen. **$1,500,000.**

● **N. B., Saint John**—Government of Canada, Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., constr. Courtnay Bay causeway with flood gates controlling tides in Marsh Creek. **$1,000,000.**

Ont., Toronto—Municipality, City Hall, subway at Maybank Ave. at Belt Line Railway Crossing. **$175,000.** Murray Stewart, City Hall, city engr.

Ont., Toronto—Municipality, bridge at Glen Rd., **$800,000.**

STREETS AND ROADS

Tenn., Cleveland—City, plans street imprvs. **$100,000.**

Tex., Bonham—Fannin Co., Bonham, farm-to-market road constr., 8 mi. Mulberry to Ravenna, **$127,200;** 6.1 mi. Bailey to Hickory Creek, Hy. 78 to Taylorville, **$95,400;** 7 mi. Cotton Center to Bartley Woods, **$112,200.**

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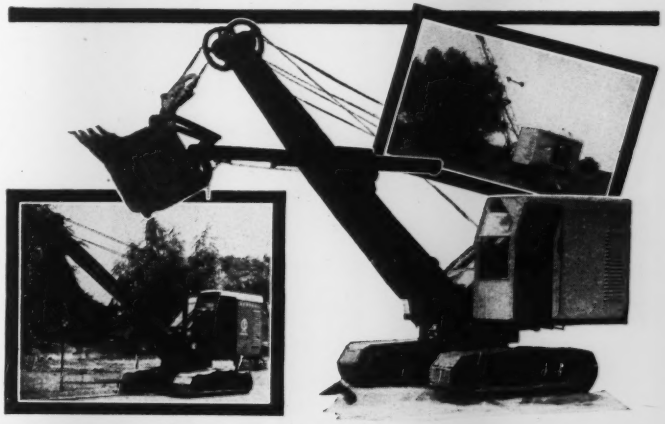

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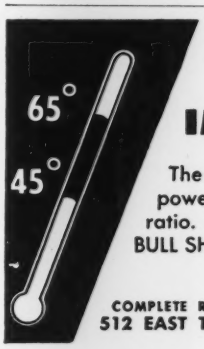

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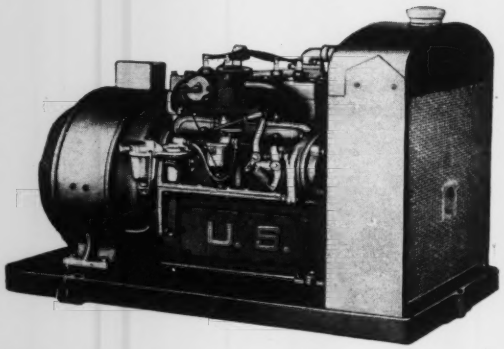

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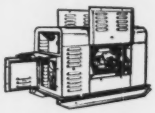

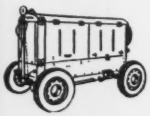

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●**Tex., San Antonio**—City, City Hall, Military Plaza, bond election Dec. 8, expressway (mostly Access Ways and Detours) **$2,800,000**; tie-in roads (due to expressway), **$200,000**; exten. South Side Arteries, **$400,000.** W. W. Toxey, city engr. CD 7/28/47.

Wash., Tacoma—City, City Hall, resurf. Polk Ave. 48 to 96 St., **$300,000**; surf. S. Washington St. 40 to 58 St., **$176,000**; S. 66 St. S. Tacoma Way to Orchard St., **$40,000**; resurf. Market St., St. Helens Ave. to Jefferson, **$50,000**; S. 56 St. Tacoma Way to Sprague Ave., **$50,000.** D. E. Morris, city engr. CD 8/17/45.

●**Alta., Edmonton**—City, G. S. Dougherty, city clk., paving city streets. Approx. **$1,260,000.** A. W. Haddon, c/o owner, engr.

Ont., Toronto—Municipality, jog elimination, Keele and Annette Sts., **$175,000.**

EARTHWORK, WATERWAYS

●**B. C., Kootenay**—International Joint Comm., Ottawa, Ont., dam constr. for marshland reclamation, on Kootenay River in border between British Columbia and Montana, **$1,000,000.**

LATIN AMERICA

●**Uruguay, Montevideo**—Republic of Uruguay, Montevideo, plans low cost housing for the use of public employees, **$1,000,000.** Ministry P. Wks., Montevideo, engr.

PUBLIC BUILDINGS

Ala., Dothan — HOUSING UNITS — Dothan Housing Auth., c/o Sherlock, Smith & Adams, archts., 301 Washington Ave., Montgomery, 100 housing units, Approx. **$500,000.**

Ark., Camden—HOSPITAL—Ouachita Co., Camden, plans by Burce R. Anderson, Wallace Bldg., Little Rock, hospital, **$900,000.** CD 9/29.

Ark., Fordyce — HOSPITAL — Dallas Co., Reece A. Parham, clk., election on **$300,000** bond issue scheduled for Oct. 26 has been postponed indefinitely, county hospital. CD 10/12.

Ark., Fort Smith—SCHOOL—Fort Smith School Bd., Fort Smith, plans by Harolson & Mott, Merchants Natl. Bank, Ft. Smith, Ballman School bldg. **$375,000** with equip.

Ark., Magnolia—HIGH SCHOOL—Magnolia School Bd., Magnolia, high school, **$300,000** with equip.

Calif., Compton—SCHOOL FACILITIES—Compton City School Dist., Compton, **$425,000** bond election Dec. 9, school facilities, H. L. Gogerty, 3123 W. 8 St., Los Angeles, archt. CD 10/19.

Calif., Jackson — HOSPITAL — Amador Co., Courthouse, plans by Geo. C. Sellon, California State Life Bldg., Sacramento, 23-bed hospital, **$300,000.**

Calif., Lindsay—SCHOOL—Lindsay Unified School Dist., Lindsay plans by Frank Wynkoop, 1638 Market St., San Francisco, steel, stucco school, **$365,000.**

Calif., Los Angeles — SCHOOL — City Bd. Educ., 1425 S. San Pedro St., plans by Kistner, Curtis & Wright, 816 W. 5 St., Cowan Ave. school, **$280,000.**

Calif., Martinez—SCHOOL—Martinez School Dist., Martinez, plans by John Lyon Reid, 109 Stevenson St., San Francisco, 1 story, light steel frame, concrete, 10 classroom, Mountain View School, **$300,000.** CD 11/19/47.

Calif., Modesto — SCHOOL — Modesto Bd. Educ., 14 and I Sts., Modesto, plans by Harry J. Devine, 1012 Jay St., Sacramento, 1 story, frame, stucco, Thomas Downey High School, **$900,000.** CD 11/1/48.

●**Calif., Montebello**—SCHOOL FACILITIES—Montebello Unified School Dist., 123 S. Montebello Blvd., voted **$3,730,000** bonds school facilities. CD 10/7.

Calif., Puente — SCHOOL — Puente Union High School Dist., voted **$600,000** bonds replacing 2 wings of main bldg., science and commercial bldgs. CD 10/13.

Calif., Red Bluff—SCHOOL—Red Bluff Union High School Dist., Red Bluff, **$590,000** bond election Dec. 6, high school addns.

Colo., Canon City—SCHOOL—School Dist. 1, Fremont Co., Canon City, voted **$600,000** bonds elementary school and imprv. grade schools, Edward L. Bunts, 470 First Natl. Bank Bldg., Colorado Springs, archt. and engr.

Colo., Golden—SCHOOL—School Dist. 1, Jefferson Co., Golden, plans by Roland L. Linder, engr. and archt., 507 Insurance Bldg., Denver, school in Pleasant View Area, **$270,000.**

Conn., Canaan—HIGH SCHOOL—Housatonic Valley Regional School Bd., Edward Byers, chn. Dist. 1, Canaan, plans by Ernest Sibley, 7 Main St., West Hartford, brick, steel high school. Approx. **$250,000.**

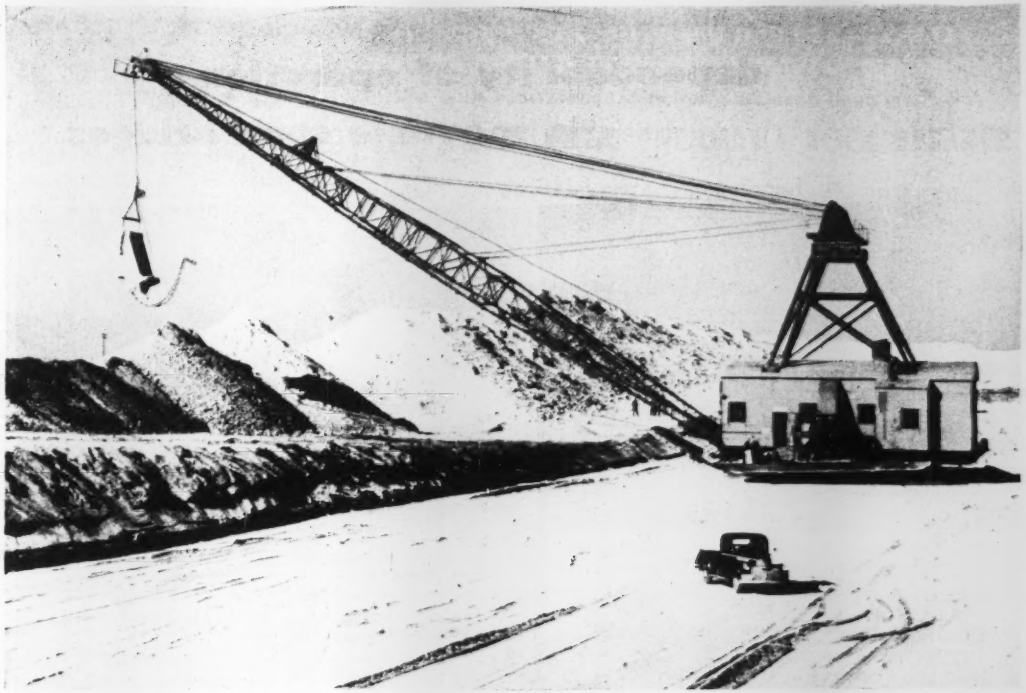
Conn., Willimantic—HOUSING—City of Willimantic Housing Auth., Willimantic, 100 family housing units, **$900,000.**

Conn., Wolcott—SCHOOL—Town, Carl J. Mattson, chn. Bldg. Comn., Wolcott, plans by Carl J. Malmfeldt Assoc., 36 Pearl St., Hartford, brick, steel school. Fair Grounds, **$300,000.**

Fla., Daytona Beach—HOUSING UNITS—Daytona Beach Housing Auth., Daytona beach, 200 housing units. Approx. **$250,000.**

Fla., Miami—SCHOOL—Dade Co., Miami, plans by James W. Voorhies, 629 N. E. 64 St., Junior-Senior High School. Approx. **$250,000.**

(Continued on page 101)



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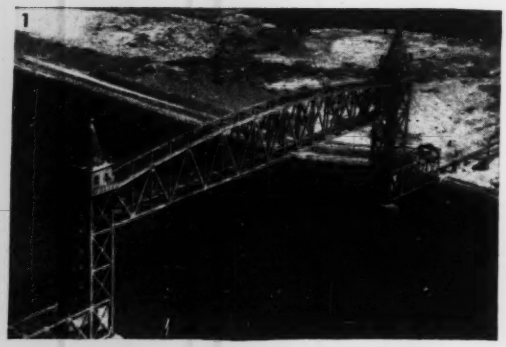

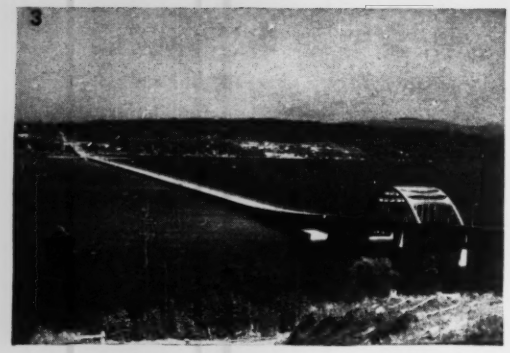

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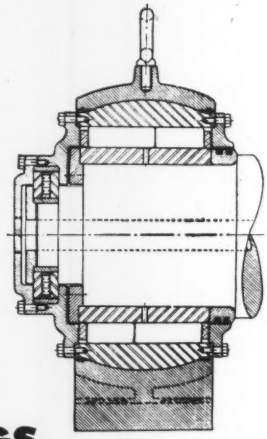

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(Continued from page 98)

Fla., Pensacola—HOUSING UNITS—Pensacola Housing Auth., Pensacola, 500 housing units. Approx. **$250,000.**

Fla., St. Petersburg—HOUSING UNITS—St. Petersburg Housing Auth., 2240 9 Ave. S., 475 housing units. Approx. **$250,000.**

Ga., Monroe—RESIDENTIAL DEVELOPMENT—Monroe Housing Auth., Monroe, residential development, **$350,000.**

Ill., East St. Louis — ARMORY — Illinois Armory Bd., J. B. McGlyn, secy., 208 S. LaSalle St., Chicago, plans by Shaw, Naes & Murphy, 80 E. Jackson Blvd., Chicago, 1 and 2 story, 181x280 ft., brick, stone, rein.-con. National Guard Armory, State St. between 29 and 31 Sts **$550,000.** CD 4/9/45.

●**Ill., Freeport** — JUNIOR HIGH SCHOOL — Freeport School Dist. 6, Freeport, voted bonds Junior High School and two elementary schools. **$2,395,000.**

Ill., Galva—ARMORY—Illinois Armory Bd., 208 S. LaSalle St., Chicago, plans by Naess & Murphy, 80 E. Jackson St., Chicago, 1-unit armory. **$400,000.**

Ill., Golconda—HIGH SCHOOL—Bd. Educ., Golconda, voted bonds high school. **$300,000.**

Ill., Kewanee—ARMORY—Illinois Armory Bd., 208 S. LaSalle St., Chicago, plans by John A. Scribben, Bondi Bldg., Galesburg, 2-unit armory, **$550,000.** CD 4/9/45.

Ill., Monsanto (East. St. Louis, P.O.)—VILLAGE HALL—Village, Bd. Trustees, Leo Sauget, pres., 2902 Monsanto Ave., **$300,000** bond election Nov. 15, 2 story, bsmnt. village hall, Lower Cahokia Rd. and Midwest Ave. CD 10/19.

Ill., Patoka—HIGH SCHOOL—Consolidated School Dist. 100, Patoka, voted bonds, high school north of here. **$350,000.**

Ill., Paris—ARMORY—Illinois Armory Bd., 208 LaSalle St. S. Chicago, plans by Naess & Murphy, 80 E. Jackson St., Chicago, 1-unit armory. **$400,000.** CD 4/9/45.

●**Ill., Tinley Park**—HOSPITAL—State, Springfield, plans by State Div. Architecture & Engineering, Springfield, state mental hospital, Tinley Park. **$2,163,000.**

Ia., Ames—MEMORIAL UNION—State Bd. Educ., 1007 Des Moines St., Des Moines, plans by Ralph Arnold, state archt. memorial union bldg. addtn. at Iowa State College. **$700,000.**

Kan., Ottawa—SCHOOLS—Bd. Educ., plans by Jos. Radotinsky, 1401 Fairfax Trafficway, Kansas City, Kan., approved **$575,000** bond issue to finance construction 2 elementary schools. CD 10/20.

Mass., Lakeville—NURSES HOME—Commonwealth of Mass., Dpt. P. Health, State House, Boston, plans by T. M. James Co., 101 Newbury St., Boston, P-H 4 nurses home, State Sanatarium. **$310,000.**

●**Minn., Duluth**—HOUSING—Duluth Housing & Redevelopment Auth., S. F. Liscom, chn., City Hall, plans by O. M. & Olson, 508 Lonsdale Bldg., 200 unit housing. Approx. **$1,000,000.**

●**Mo., Jefferson City**—STATE HOUSE—State, John F. Powell, dir. P. Bldgs., State Capitol, Jefferson City, plans by Marcel Boulicault, 411 N. 7 St., St. Louis, state house, **$3,000,000.** CD 2/21.

Mont., Billings—CIVIC CENTER—City, City Hall, no project contemplated civic center bldg. **$998,816. (Correction**—status). CD 9/23.

Mont., Billings—DORMITORY—State, Bd. Educ., Helena, plans by Chandler C. Cohagen, Hedden Bldg., 3 story, bsmnt., steel, concrete, brick, limestone, L-shaped women's dormitory, Eastern Montana College of Educ., **$271,-250.** CD 4/20.

Neb., Imperial — SCHOOL — Chase Co. Bd. Educ., Imperial, defeated bonds, school enlargement. **$330,000. (Correction**—status) CD 10/24.

Neb., Norfolk—MEDICAL—State Bd. Control, Lincoln, medical bldg. at Norfolk State Hospital. **$300,000.**

●**N. J., Hackensack**—HOUSING—Hackensack Housing Auth., Hackensack, plans by Kelly-Gruzen, 80 Fifth Ave., New York 3, N. Y., 900 unit housing. **$8,500,000.**

●**O., Columbus**—SCHOOL— Dpt. P. Wks., S. O. Linzell, dir., Columbus, plans by Tibbals, Crumley & Musson, 965 E. Mound St., State School for Deaf, Indianola Ave. and Morse Rd. **$2,890,000.** CD 7/16/45.

●**O., Warrensville Heights**—HOSPITAL—Bd. Trustees Cuyahoga County Hospitals, c/o Peter J. Slack, chn., 15210 Onaway St., Cleveland, plans by Walker & Weeks, 1240 Huron Rd., Cleveland, 4 story, brick, steel chronic hospital on Cooley Farms off Warrensville Center Rd. **$6,000,000.**

O., Youngstown—HOSPITAL—State of Ohio, Youngstown, receiving hospital addn. **$800,-000.** CD 2/26/47.

Pa., Albion—HIGH SCHOOL—Joint School Bd. of Conneaut and Elk Creek Twps., Albion, plans by Freeburg & Lindquist, 1105 W. 3 St., Jamestown, high school. **$700,000.** CD 2/28/46.

S. C., Charleston—TERMINAL—South Carolina State Ports Auth., 1 Vendue Range, liquid caustic soda storage terminal incl. 70 ft. high and 40 ft. diam. steel storage tank, weighing devices and handling facilities. **$100,000.** The McPherson Co., Greenville, engr.

S. C., North Charleston—SCHOOLS—School Dist. 4, North Charleston plans by Halsey & Cummings, 4 Broad St., Charleston, 6 schools adns. and construct 1 school. **$523,000.**

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●♦**Tenn., Camp Forrest**—RESEARCH CENTER—U. S. Dpt. of Air Force, Pentagon Bldg., Wash., D. C., research center for testing faster than sound planes and missiles. Total est. cost **$1,000,000,000.** ($100,000,000 appropriated to date for wind tunnels, etc.). Sverdrup & Parcel, consult. engrs., Syndicate Trust Bldg. St. Louis 1, Mo., assisted in selecting site.

Tex., Brownwood—SCHOOL—Brownwood Independent School Dist., Brownwood, bond election Dec. 3, masonry school, concrete slab fdn. **$450,000.**

Tex., Crockett—HOUSING—Crockett Housing Auth., Crockett, 100 unit low rent housing. Approx. **$725,000.**

●**Tex., Greenville**—SCHOOLS—Greenville Independent School Dist., Greenville, voted bonds, brick, concrete Senior High School, **$275,000;** masonry Negro High School, **$250,000;** brick, concrete school, **$250,000;** school addn. **$275,000.** CD 8/17/45.

Tex., Lubbock—STUDENT UNION—Texas Technological College, Lubbock, masonry student union. **$500,000.**

Tex., Taylor—HOUSING—Taylor Housing Auth., Taylor, plans by Cameron Fairchild, 2626 Westheimer St., Houston, 70-unit rental housing units. **$612,500.** CD 10/20.

Utah, St. George—POWER PLANT—Town, c/o Mrs. Ellen S. Bentley, recdr., St. George, voted bonds, Oct. 27, enlarging power plant. $160,000. W. W. Cannon, c/o owner, city engr.

●**Va., Richmond**—BUILDING—State of Virginia, Richmond, plans by Merrill C. Lee, 110 N. 7 St., and Eggers & Higgins, 542 5 Ave., New York, N. Y., Virginia Museum of Fine Arts addn., Boulevard and Grove Ave. **$1,000,000.**

●**Wash., Auburn**—HOUSING—Auburn Housing Auth., Auburn, 150 housing units, **$1,050,000.**

Wash., Port Townsend — HOUSING — Port Townsend Housing Auth., Port Townsend, 60 housing units, **$420,000.**

●**Wash., Seattle** — HOUSING — King County Housing Auth., 2 and Pine Bldg., Zone 1, 1,000 housing units in area adjacent to city. **$7,000,000.**

●**Wash., Vancouver** — HOUSING — Vancouver Housing Auth., Vancouver, 800 housing units. **$5,600,000.**

W. Va., Charleston—HOUSING—Charleston Housing Authority, S. Clyde Jarrett, dir., Charleston, 500 housing units, Approx. **$250,000.**

Wyo., Douglas — HOSPITAL — Converse Memorial Hospital, Douglas, 1 and 2 story 36-bed, brick hospital, **$300,000.**

Wyo., Rawlins—HOSPITAL—Carbon County Memorial Hospital, Rawlins, plans by Kellogg & Kellogg, 1909 Carey Ave., Cheyenne, 3 story hospital, **$325,000.**

●**Man., Winnipeg** — SCHOOLS — Winnipeg School Bd., William and Ellen Sts., plans by W. A. Martin, c/o owner, George V. School addn., Sir John Franklin School addn., Cecil Rhodes School addn., and Rockwood School addn. Approx. **$675,000;** constructing school, Church and Robertson Sts. Approx. **$340,000.**

Man., Winnipeg—SCHOOL—School Bd., 7 William St., plans by W. A. Martin, 7 William St., school, Cordova St. **$250,000.** CD 11/15/46.

Ont., Lindsay—COLLEGIATE INSTITUTE—Bd. Educ., J. R. Wilford, secy., collegiate institute. Approx. **$800,000.** CD 4/14/43.

Ont., Oshawa—CITY HALL—City, city hall, Approx. **$375,000.** W. T. Dempsey, c/o owner, engr. CD 1/10.

Ont., Oshawa—LIBRARY—City, bond election Dec. 5, library, Approx. **$250,000.** N. L. Young, 91 Rowe St., archt. W. T. Dempsey, c/o owner, engr.

●**Ont., Port Arthur**—MENTAL HOSPITAL—Providence of Ontario Dpt. Health, Toronto, mental hospital. **$1,000,000.** CDD 12/3/46.

●**Ont., Toronto**—VOCATIONAL SCHOOL—Bd. Educ., York Twp., C. E. Webster, bus. admin., plans by J. B. Parkin & Assoc., 717 Church St., 2 and 1 story, part bsmnt., brick, steel vocational school, Keele St. and Elora Rd. Approx. **$1,000,000.**

Ont., Toronto — HEALTH and WELFARE CENTER—Municipality, City Hall, health and welfare center, for West Center District, **$250,000.** Murray Stewart, City Hall, city engr.

Que., Malartic—SCHOOL—School Comn., Malartic, school, **$275,000.**

Que., Montreal — GARAGE — Municipality, plans by J. D. Beaupre, city archt., municipal garage, Western Ave., **$250,000;** municipal garage and storage bldg., De Fleurimont St., **$300,000.** H. A. Gibeau, City Hall, city engr.

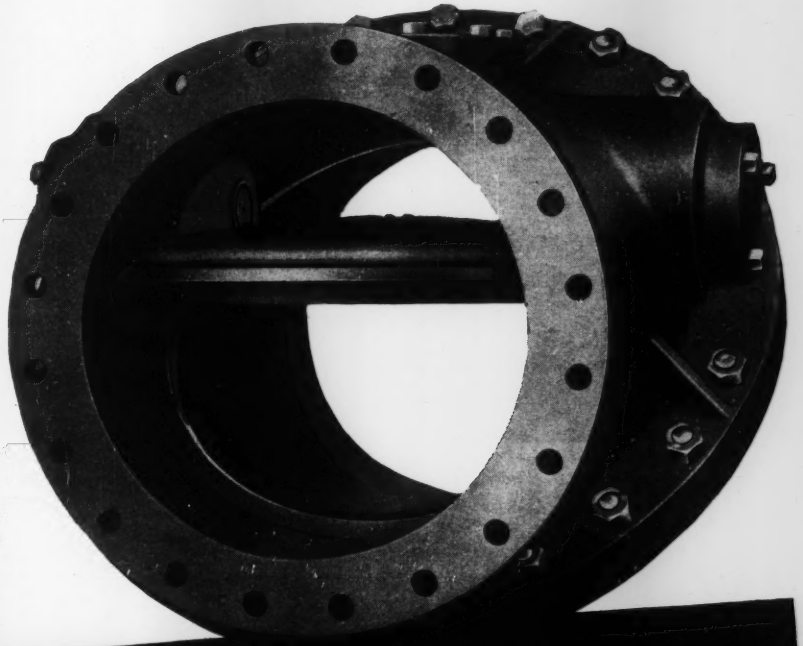
Que., Stanstead—SCHOOL—Rock Island & Stanstead Protestant School Bd., Stanstead, plans by Barott, Marshall, Montgomery, & Merrett, Canada Cement Bldg., Montreal, 2 story, part bsmnt. 80x150 ft. school, on campus of Stanstead College, Approx. **$250,000.**

Sask, Saskatoon—HOSPITAL—Municipality, City Hall, city hospital addn. **$690,000.** H. McIver Weir, City Hall, city engr. CD 1/19.

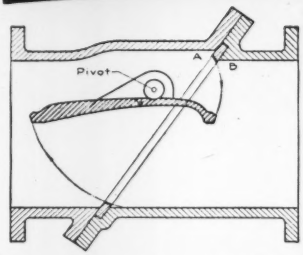
Sask, Swift Current—CITY HALL—Municipality, city hall, **$250,000.** H. W. Carss, city engr.

COMMERCIAL BUILDINGS

●**Ill., Chicago**—STORE—Goldblatt Bros., Inc., 333 S. State St., Zone 4, plans by Friedman Alschuler & Sincere, 223 W. Jackson Ave.,



THERE IS *No Slamming* WITH CHAPMAN TILTING DISC CHECK VALVES



Cross-section of the Chapman Tilting Disc Check Valve illustrating the way that the balanced disc is supported on the pivot, with arrows showing the travel of the disc. A feature of the design is that the disc seat lifts away from the body seat when opening, and drops into contact when closing, with no sliding or wearing of the seats.

BECAUSE of the design of the balanced hinge-pinned disc, Chapman Tilting Disc Check Valves always close smoothly and quietly. There is no slamming, no hammering, no destructive pipe-line stress.

When open, the disc rides smoothly in the flow. As it closes, the effect of the stream on the short flap cushions the contact with the body seat. There is no sliding action and therefore wear on seats is reduced to a minimum. In addition, head losses are lowered as much as 65% to 80% over those experienced with conventional type check valves.

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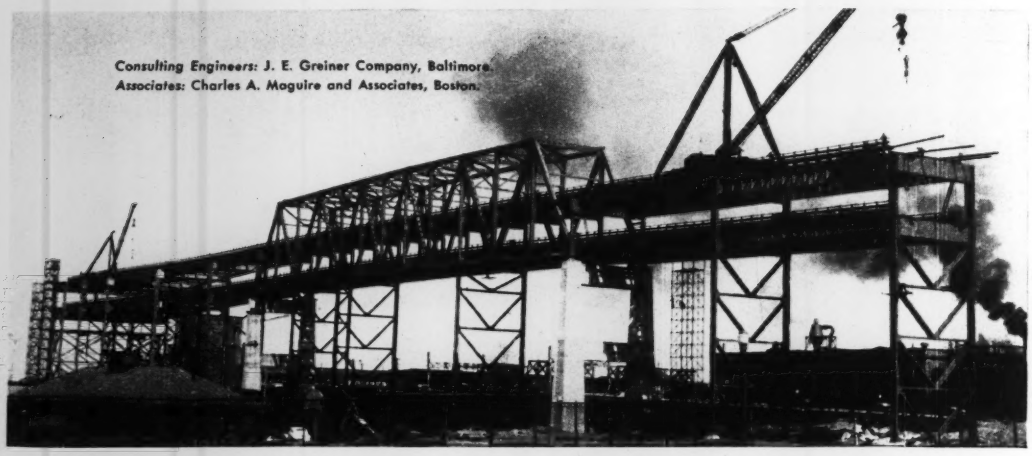


Consulting Engineers: J. E. Greiner Company, Baltimore.
Associates: Charles A. Maguire and Associates, Boston.

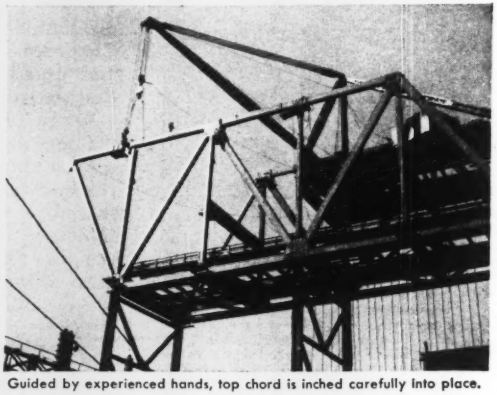
Steel Double Decker in Boston's Inner Harbor

The Mystic River Bridge, connecting Charlestown and Chelsea, Mass., and becoming part of Boston's heavily-traveled Northeast Expressway, is to be the largest steel bridge ever built in New England. It is scheduled for completion early in 1950.

A viaduct more than two miles in length, the Mystic River Bridge will be 135 ft above high water, and will have two roadway levels, each accommodating three lanes of traffic. This double-decker bridge is to consist of a cantilever through-truss unit over the Mystic River, and a simple-span through-truss unit over the Little Mystic Channel. Its construction calls for some 31,000 tons of steel.

As fabricators and erectors of the truss span over the Little Mystic, as well as sections of the northern and southern approaches and toll plaza, Bethlehem is participating in the construction of this noteworthy addition to the Boston skyline.

Traveler derrick erects diagonal web member for Charlestown approach.



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BETHLEHEM STEEL

Zone 6, 1 story, bsmnt., 125x425 ft., steel, concrete, brick department store (present structure to be wrecked), Madison St. and Pulaski Rd., **$1,200,000.**

Ill., Chicago—OFFICE, etc.—Helena Rubinstein, Inc., 666 N. Michigan Ave., Zone 11, plans by Friedman Alschuler & Sincere, 223 W. Jackson Ave., Zone 6, 5 story, bsmnt., 35x75 ft., rein.-con., brick, stone office and beauty shop, **$250,000.**

●**Ill., Chicago** — APARTMENT — Owner, c/o Dubin & Dubin, archts., 140 N. Dearborn St., 14 story, brick, rein.-con. apartment, 4930 Marine Dr. **$5,000,000.**

●**Ill., Oak Park**—HOSPITAL—Baptist Home & Hospital, 315 Pine St., plans by E. E. & Elmer C. Roberts, 201 W. Wells St., Chicago, Zone 6, hospital and hospital addn. **$2,500,000.**

Ind., Lafayette—CHAPEL—Most Rev. Jno. G. Bennett, Bishop of Lafayette Diocese, 610 Lingle Ave., plans by Walter Scholer & Assoc., 1114 State St., 1 story, bsmnt., 53x124 ft., brick, stone, concrete chapel, State and Marstellar Sts., **$250,000.** CD 1/25/45.

●**Ia., Grinnell**—SCIENCE—Grinnell College, Grinnell, science bldg., **$1,000,000.** CD 1/21/48.

Ia., Iowa City—LIBRARY—Midwest Inter-Library Center, University of Iowa Campus, Iowa City, library. **$500,000.**

Ia., Vinton—HOSPITAL—Virginia Gay Hospital, Florence Vander Wilt, supt., plans by Wetherell & Harrison, Shops Bldg., Des Moines, hospital, **$373,000.** CD 10/19.

La., New Orleans—DORMITORY—Tulane University, 6823 St. Charles Ave., plans by Richard Koch, Queen and Crescent Bldg., 3 story brick, men's dormitory, **$400,000.** CD 11/22/46.

Miss., Clarksdale—TELEPHONE—Southern Bell Telephone Co., Hurt Bldg., Atlanta, Ga., telephone exchange bldg. Approx. **$300,000.**

●**Neb., Omaha**—HOUSING—Omaha Industrial Housing Corp., 3013 S. 42 St., addnl. 176 housing units. **$1,350,000.**

N. Y., Brooklyn—BUILDING—St. John's University, 96 Schermerhorn St., Zone 2, plans by Henry V. Murphy, 1 Hanson Pl., Zone 17, adjoining 4 story bldg., housing school of pharmacy, school of nursing and a library, 72 Schermerhorn St., **$350,000.**

●**N. Y., Forest Hills**—APARTMENT—Greenbriar Apartments, Inc., c/o Erwin Gerber, archt., 11x6 Raymond Blvd., Newark, N. J., 6 story apartment, Yellowstone Blvd. south of 68 Dr. **$1,540,000.**

N. Y., New York—POST OFFICE—Realben Corp., c/o Benjamin Lazarus, 200 Hudson St., Zone 13, plans by Wechsler & Schimmenti, 17 E. 42 St., Zone 17, post office, 432-38 E. 14 St. and 4-35-45 E. 12 St. **$300,000.**

●**O., Dayton**—HOUSING—Auburndale Gardens, Inc., c/o Charles T. Wills Corp., 286 5 Ave., New York, N. Y., 71 building units, each containing 298 units of 4 rooms each along Kings Hy., east of Gettysburg Ave. Approx. **$2,000,000.**

O., Findlay—CHURCH—Evangelical U. B. Church, Lima and Main Sts., plans by Boyd G. Martin, 256 E. North Broadway, Columbus, 2 story, bsmnt., masonry, steel, stone church, **$250,000.**

●**O., Toledo** — SHOPPING CENTER — Dean Bailey & Ray Murnen, Edison Bldg., plans by Ketchum, Gina & Sharp, 227 E. 44 St., New York, N. Y., 1 story, brick, stone shopping center, tentatively named Orchard Hills incl. theater, department store, super-market, restaurant, specialty shops, etc. **$2,500,000.**

Pa., Pittsburgh—APARTMENT—301 S. Negley, Inc., L. W. Wells, 701 Washington Rd., Mt. Lebanon, plans by Phillip Friedman, 121 S. Negley Ave., 6 story, brick, block apartment, garage, S. Negley Ave. **$250,000.**

Pa., Pittsburgh — APARTMENTS — Negley Apartments, Inc., 428 Winterhill St., plans by Philip Friedman, 121 S. Negley Ave., 3 story U-shaped, brick, block apartment, 5624 5 Ave. **$275,000.**

Pa., Whitehall Boro (near Pittsburgh)—APARTMENTS—Port View Dwellings, Inc., 317 Castle Shannon Blvd., Castle Shannon, Pittsburgh, plans by C. V. Blizard, 901 Ridge Ave., Pittsburgh, three 3 story, bsmnt. brick, block apartments. **$500,000.**

●**Pa., Wilkinsburg**—APARTMENT—Park Haven Apartments, Inc., c/o Arthur P. Davis, archt. 1726 M St. N. W. Wash., D. C. apartment, Churchill Boro, near here. **$1,500,000.**

S. C., Columbia—CHURCH—Park Street Baptist Church, c/o Lafaye, Lafaye & Fair, archts., 1226 Sumter St., church. **$325,000**

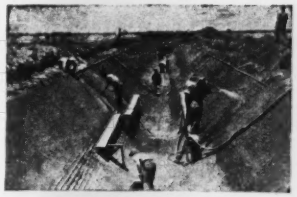
●**S. C., Sumter**—APARTMENT—J. C. Long, 88 Broad St., Charleston, plans by Lyles, Bissett, Carlisle & Wolff, 1302 Main St., Columbia, 8 story apartment. **$1,000,000.**

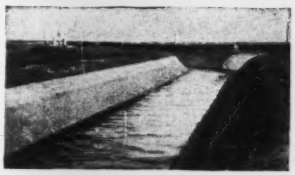
Tenn., Kingsport—HOSPITAL—Holston Valley Community Hospital, Kingsport, plans by Charles H. McCauley & Assoc., Jackson Bldg., Birmingham, Ala., hospital addn, **$900,000.** CD 2/12/47.

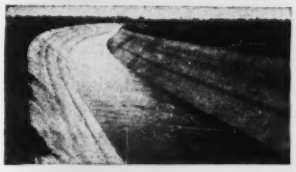
Tex., Corpus Christi—HOSPITAL—Sisters of Charity of the Incarnate Word, Broadway St., San Antonio, plans by Wade, Gibson & Martin, 921 Prof. Bldg., 3 story, 75x192 ft. hospital annex. **$400,000.** CD 11/17/48.

●**Tex., Fort Worth** — RESIDENCES — Taylor-Todd Corp., First Natl. Bank Bldg., plans by Easterwood & Easterwood, 303 Bewley Bldg., 262 one story brick veneer homes in Smithfort Addn. **$1,750,000.**

Tex., Houston—HOUSING—Foster-Marshall, M & M Bldg., housing, various locations. **$275,000.**







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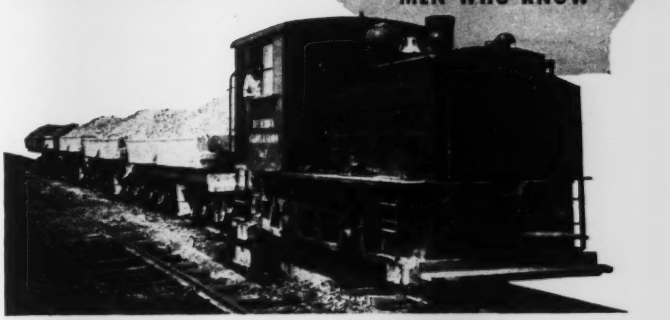

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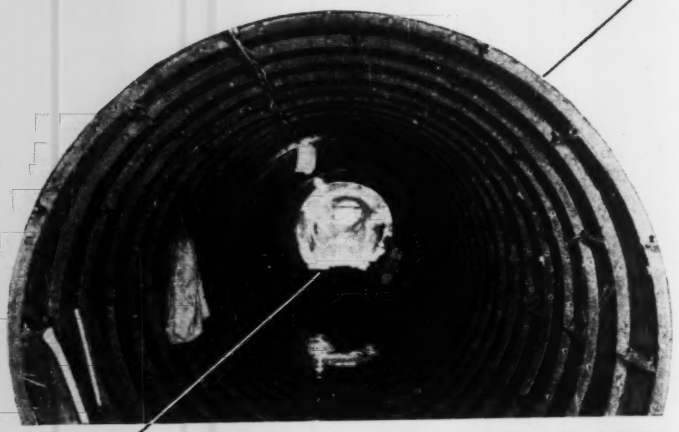

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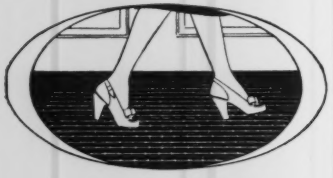

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Tex., San Antonio—GROCERY, etc.—H. E. Butt Grocery Co., Robstown Rd., Corpus Christie, plans by Phelps & DeWees & Simmons, 1501 Majestic Bldg., masonry grocery and markets, 4800 blk, Broadway, **$250,000**; off N. New Braunfel's Ave., **$250,000**; in the Highlands, **$250,000**. CD 3/30.

Tex., San Antonio — HOUSING — John F. Cunningham Jr., 1120 N. Mesquite St., plans by Ernest Reed, 330 Primrose St., housing **$250,000**.

Tex., San Antonio—DWELLINGS—Richard Gill Co., Gunter Bldg., addnl. 100 frame, masonry dwellings, concrete slab fdn., off Basse Rd. **$800,000**.

●**Tex., San Antonio** — DWELLINGS, etc. — Richardson Development Corp., Gunter Bldg., 150 dwellings, **$1,200,000**; shopping center, **$250,000**; all foregoing on Blanco Rd. between Thorain and Lovera Blvds.

Tex., San Antonio—CLASSROOM-ADMINISTRATION—Trinity University, W. Ashby St., plans by O'Neil Ford, Harvey P. Smith, Natl. Bank Commerce Bldg., B. Cocke, 3501 Broadway, 2 story, 60x384 ft., steel, concrete frame classroom-administration, concrete pier and beam fdn., **$300,000**. Frank Drought, 117 W. Pecan St., consult. engr. CD 8/23/45.

Tex., San Antonio—HOUSING—U. S. Land Co., c/o Duke & Dodson, Transit Tower, housing, Rollingwood Estates off Callaghan Rd. **$300,000**.

Wash., Olympia—GRADE SCHOOL—St. Michael's Church, Olympia, plans by J. W. Maloney, Central Bldg., Seattle, Zone 4, 1 story grade school and residence for nuns, **$300,000**.

●**Alaska, Ketchikan**—APARTMENT—L. S. Ferris, Richmond Beach, Wash., plans by E. W. Morrison & Assoc., 719 2nd Ave. Bldg., Seattle, Wash., 7 story, bsmnt., rein.-con. apartment. **$1,250,000**.

INDUSTRIAL BUILDINGS

Calif., San Jose — WAREHOUSE — Santa Clara Packing Co., 620 N. 8 St., rein.-con. cannery warehouse. **$500,000**.

●**Fla., Miami** — TERMINAL — Florida East Coast Railway Co. L. C. Frohman, ch. engr., St. Augustine, terminal. **$3,000,000**.

●**O., Cleveland** — CATALYTIC CRACKING FACILITIES — The Standard Oil Co., Midland Bldg., Cleveland, expansion catalytic cracking facilities at Cleveland Refinery No. 1. **$4,500,000**.

Tex., Amelia—SHOP—Cook & Co., 820 Fannin St., Beaumont, 100x240 ft., steel, concrete machinery and equip. service repair shop, sales, parts. **$100,000**.

●**Tex., Dallas**—PLANT—Lone Star Steel Co., 4152 Mockingbird Lane, c.i. pipe plant. **$1,000,000**.

●**Philippine Islands, Manila** — PLANT — National Development Corp., Manila, plant mfg. fertilizer. **$2,900,000**.

Ont., Port Arthur—PLANT—Koppers Co., Inc., Koppers Bldg., Pittsburgh, Pa., plant. **$200,000**.

UNCLASSIFIED

●**New Jersey**—GAS PIPELINE—South Jersey Gas Co., 2001 Atlantic Ave., Atlantic City, 75 mi. gas pipeline to carry about 30,000,000 cu. ft. natural gas daily, connect near Camden with lateral of Transcontinental Gas Pipe Line Company's Texas to New York City line (now under construction) and would extend to Atlantic City with laterals to Glassboro, Brigeton, Vineland and Estelville areas. **$2,175,000**.

New York—RURAL DISTRIBUTION LINES—Delaware County Electric Co-operative, Inc., Delhi, 55 mi. rural distr. lines and sys. imprvs., Delaware Co. **$205,000**.

North Carolina—RURAL DISTRIBUTION LINES—Davidson Electric Membership Corp., Lexington, 45 mi. rural distr. lines and sys. imprvs., Davidson Co. **$229,000**.

Tennessee—RURAL DISTRIBUTION LINES—Tennessee Valley Electric Co-operative, Savannah, 145 mi. rural distr. lines and sys. imprvs., Hardin Co. **$600,000**. CD 11/13/47.

●**Tex., Beaumont** — COLISEUM — City, defeated bonds Nov. 1, coliseum. **$2,000,000**. CD 10/5.

●**Tex., Longview** — POWER PLANT, etc. — Southwestern Gas & Electric Co., Longview, expansion Knox Lee Electric Power Plant on Lake Cherokee, **$8,500,000**; electric power transmission lines, **$200,000**.

●**Wyoming**—RURAL DISTRIBUTION LINES—Tri-County Electric Assn., Sundance, 710 mi. rural distr. lines, 34.5 mi. transmission lines, sys. imprvs. and completion previously approved construction, Crook Co. **$1,338,000**. H. S. Nixon Eng. Co., W O W Bldg., Omaha, Neb., consult. engr.

●**Alaska, Fairbanks** — PUBLIC UTILITIES SYSTEM—City, City Hall, public utilities sys. (phone, power, water and heat), **$4,000,000**. G. W. Rathjens, Fairbanks, consult. engr. CD 7/11/47, under Public Bldgs.

Ont., Toronto—SIGNAL SYSTEM—Municipality, Toronto, rewiring, enlarging, modernizing Police-Patrol Signal System **$200,000**; enlarging and modernizing inter departmental telephone system, **$30,000**. Murray Stewart, city engr.

Welding Cuts Dead Load 44%... Increases Space Four Times

By Walter R. Steyer, *President*
Steyer-Weisbrod, Inc., Huntington Park, California

IN remodeling the Los Angeles Coliseum Press Box, arc welding has made possible the erection of a modern, three-level structure having over four times the available space without exceeding the live and dead loads of the original building. Where the former concrete press box accommodated only 98 persons on one level with 18″ of space per person, the new, rugged, all-welded structure has generous facilities for 178 people with 42″ of space per person.

The new Coliseum Press Box has been erected through arc welding in a scheduled time of 4 months and at a cost of only $150,350.00. To achieve earthquake and wind load requirements, light steel framing and Fenestra panels are used. In erection, members are first bolted, aligned and then welded with "Fleetweld 5" electrodes using Lincoln "Shield-Arc" DC welders. The center lines of "H" columns are rigidly connected to the longitudinal beams with moment connections. Butt plates are added in the field at the top and bottom flanges of the beams supporting the Fenestra panels (Fig. 4). These in turn are continuously welded to the columns and beams.

Fig. 2. Welding type D Fenestra panels with Lincoln "Fleetweld 5" electrodes. Total dead weight of floor including ceiling and finish surfacing is only 14 lbs. per square foot.

Transversely, the horizontal forces are taken by the columns in the rear wall and the center columns. Rigid or moment connections are developed in this direction also. This approach leaves the front columns free to carry vertical loads only, allowing them to be of minimum size pipe columns so as not to impair visibility. To avoid doubling up on columns at expansion joints, the expansion joints are placed in the center of the beam spans supporting the Fenestra panels by means of cantilevering.

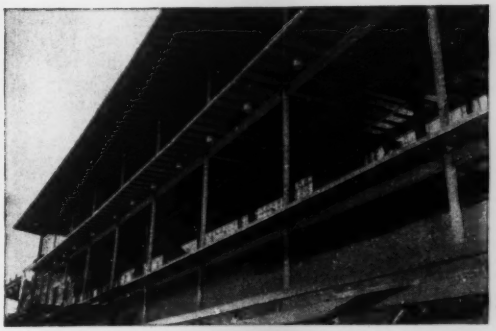

Fig. 1. All welded Los Angeles Coliseum Press Box acclaimed as the "Outstanding press box in the world." Architects: Bennett and Bennett, Pasadena, Cal.; Structural Engineer: John Case, Los Angeles; Fenestra Floor & Roof Panels: Detroit Steel Products Company, Detroit, Mich.; General Contractor: Barrett and Hilp, Los Angeles; Structural Steel and Fenestra Panel Erection: Steyer-Weisbrod, Inc., Huntington Park, Cal.

In remodeling projects of this kind, welding is decidedly preferable to riveting. Riveted design involves heavy connecting material since all of the connections are moment or rigid type.

Although the potential savings in cost through arc welding on this project were carefully considered, it was the decided saving in weight that made welded construction preferable.

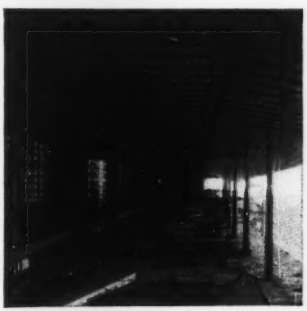

Fig. 3. Upper level shows all welded light steel frame with expanded steel studs for partitions. Front columns are pipe for maximum visibility.

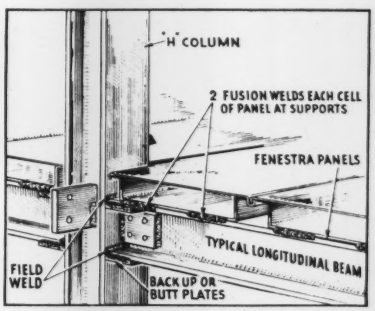

Fig. 4. Typical beam-to-column connection shows use of butt plates on beam flanges and details of Fenestra floor panels.

Fig. 5. Lower level showing beam and column details as well as all welded stairway. Note cantilever detail of upper flooring.

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CONSTRUCTION REPORTS—Second Section

WATER SUPPLY

BIDS ASKED

November 28

N. Y., New York—Comr. Water Supply, Gas & Electricity, Municipal Bldg., Zone 7, watermains, appurtenances., Pond Pl., Givan, Oak Point and Paulding Aves., Bronx Boro. Plans deposit $1.

December 6

†Oregon — Bureau Reclamation, Dpt. Interior, Klamath Falls, modification, exten. inlet transition structure for Pumping Plant D, and enlarging portion inlet channel to pumping plant, Klamath Proj., Tule Lake Div., Spec. R2-73A (Region 2). CD 10/25, under LB.

S. C., Clinton—Town, WW imprvs. Approx. $28,000. Harwood Beebe Co., Spartanburg, engr. CD 4/12/46.

December 8

Conn., Hartford—Bd. Contract & Supply, Metropolitan Dist., 115 Broad St., excavation and foundation work of Cedar Mountain Storage Reservoirs Contr. 159. Plans deposit $5. CD 10/17/47.

About December 15

†N. M., Las Cruces—U. S. Eng., P. O. Box 1538, Albuquerque, production water well, White Sands Proving Ground, (White Sands P. G. P-911G), Serial No Eng-29-005-50-20.

December 15

Pa., Chester—At office Clarence L. Conner, exec. mgr., Chester Municipal Auth., 5 and Welsh Sts., approx. 208,000 lin. ft. water transmission main from water purification plant at Chester-Octoraro Lake to Chester-Harrison Hill Reservoir in Lancaster, Chester and Delaware Counties. Plans deposit $40. Albright & Friel, Inc., 121 S. Broad St., Phila., Zone 7, consult. engr.; adv. ENR 11/24. CD 12/9.

January 9

Puerto Rico—Puerto Rico Aqueduct and Sewer Auth., Santurce, Sect. F, gravity-type concrete dam, 210 meters long with maximum height to spillway crest of approx. 18 meters with concrete power plant structure, pump. station substructure, tail race and installing tainter gates; Sect. G, furnishing C. I. F. San Juan, Puerto Rico 8 tainter gates, each 39x30 ft. with hoisting mechanisms and electrical control equip.; Sect. H, furnishing C. I. F. San Juan, 2 hydraulic turbines and two 1,250 kva electric generators. Buck, Seifert & Jost, 112 E. 19 St., New York, consult. engrs. CD 9/24/45.

Bids Asked

Tex., Dallas—Bailey Johnson Co., Lake June Rd., 6 in. c.i. water lines, facilities, Oak Hill Park Annex. $35,000.

Tex., Fort Worth—Taylor-Todd Corp., 1st Natl. Bank Bldg., c.i. waterlines, facilities off Mitchell Blvd. and adjacent Masonic Home. $35,000. Easterwood & Easterwood, 404 Bewley Bldg., project engrs.

LOW BIDDERS

Mass., Salem—City, City Hall, Nov. 8, pumping station equip., North Beverly, from Warren Steam Pump Co., Inc., 75 Federal St., Boston, **$48,212.** CD 10/27.

Mont., Helena — City, City Hall, Nov. 3, watermains from Rushlight Sprinkler Co., 55 NE Farragut Rd., Portland, Ore., **$125,957.** Morrison Eng. Co., Helena, engr.

CONTRACTS AWARDED

Ill., East Peoria—East Peoria Drainage Dist., 124 Summit St., East Peoria, pumping station to Fred Harbers Sons, 101 S. Adams St., **$84,662.** Alverd Burdick & Howson, 20 N. Wacker Dr., Chicago, Zone 6, engrs.

S. D., Yankton—City, filtration plant and chemical storage bldg., to Poulson Bros., Yankton, **$32,310.** Bids 10/17. CD 10/7.

Tex., Fort Worth—City, W. O. Jones, mgr., 48 in. water conduit crossing of Trinity Clear Fork River into Holly Water Plant, to F. S. Oldt & Co., Century Bldg., **$52,000.** Est. $61,000. Awarded 11/9. CD 10/21.

Tex., Houston — Bayou Park Apartments, c/o Joseph B. Reynolds, engr., 2518 Times St., c.i. waterlines, own forces. Approx. **$32,000.**

Tex., Houston—Harris County Water Control & Imprvt. Dist. 8, Ray D. Henderson, 6624 Foster St., approx 11,000 lin. ft. waterlines, to Brown & Root, Inc., Box 3, **$117,000;** surface and elevated water storage tanks, to Chicago Bridge & Iron Wks., 5625 Clinton Dr., **$34,700,** Joe J. Rady, 811 Insurance Bldg., Fort Worth, engr. CD 10/15/47.

Tex., San Antonio—U. S. Land Co., Transit Tower, c.i. waterlines and facilities, to McElwrath Bros., 439 Frederick Rd. Approx. **$35,000.**

Ont., Parkhill—Council, supplying de-gassifying equipment, to International Water Supply Co., 12 Maitland St., London. Approx. **$30,000.** W. N. Veitch, R. R. 2, Wilton Grove, engr.

Que., Quebec City—Municipality, City Hall, installing water services in newly constructed homes and buildings, own forces. **$75,000** voted. CD 7/26.

SEWERS, WASTE DISPOSAL

BIDS ASKED

November 28

N. Y., Brooklyn—President Brooklyn Boro, Boro Hall, Zone 2, combined sewers, Farragut Rd., Foster and Stanley Aves., E. 98 and E. 99 Sts., reconstructing sewers Union Ave., Richardson and N. 11 Sts.

N. Y., Rockville Center—Village Clerk, Municipal Bldg., incinerator and field house addns., imprvs. $70,000. CD 9/28/44.

November 29

Ind., Speedway—Bd. P. Wks., sewage treatment plant and sewerage sys. exten. $500,000. Moore & Owen, 1920 N. Meridian St., Indianapolis, Zone 2, consult. engrs.

Minn., Minneapolis—University of Minn., R. S. Callaway, purch. agt., 323 Admin. Bldg., Main Campus, sandrock storm sewer tunnel, drill holes, surf. connections, etc., near site of proposed new Mayo Clinic. $125,000. Plans deposit $5.

†Minn., St. Cloud—Veterans Admin., Vermont Ave. between H and I Sts. N. W., Washington, Zone 25, D. C., storm sewers for Veterans Admin. Hospital. Spec. 4951, Proj. 22-5032.

R. I., Providence—State of Rhode Island and Providence Plant. Blackstone Valley Sewer Dist. Comn., 238 State Office Bldg., Contr. 13, 34x63 ft. Omega Pumping Station, and track bldg., equip., appurtenances, East Providence. Approx. $50,000. Plans deposit $25. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., engrs. CD 2/27/48.

About December 1

Mo., Kirkwood (St. Louis 22, P.O.)—City of Kirkwood, William C. Mason, clk., 139 S. Kirkwood Rd., Sugar Creek Sewage Disposal Plant, equip., auxiliaries, appurtenances, etc. $200,000. Wm. C. Berry, 8028 Forsyth Blvd., Clayton St. Louis, Zone 24, engr.

December 2

La., Morgan City—Mayor, sewer extens., 4 lift stations, appurtenances. Plans deposit $20. T. Baker Smith, Houma, engr.

December 6

Tex., Waco—City, Proj. 3, sanitary sewerage sys. imprvs., incl. 63,177 lin. ft. various sized pipe. $275,000. Plans deposit $25. John H. Strange, city engr. CD 7/1/48.

December 8

Tex., San Antonio—City, City Hall, Military Plaza, Sect. 3, incl. open drainage and grading. Approx. $100,000. Plans deposit $25. H. R. F. Helland, Frost Bank Bldg., engr. CD 12/15/47.

December 9

Conn., Waterbury—Bd. P. Wks., City Hall, constr. 15 m. g. d. sewage treatment plant, incl. screen and grit chamber with superstructure and attached garage, pump and service bldg., 3 primary settling tanks, sludge filter bldg. sludge storage tanks with superstructure, chlorine bldg. and attached service garage, furnish. and installing misc. connections, piping, equip. and electrical work. Plans deposit $25. Malcolm Pirnie Engineers, 25 W. 43 St., New York, N. Y., engrs.

December 12

Va., Williamsburg—City, at office Hugh B. Rice, mgr., City Hall, sewage treatment plant imprvs. Plans deposit $25. Wiley & Wilson, 905 Peoples Bank Bldg., Lynchburg, consult. engrs. CD 10/31, under L.B.

December 14

Calif., Long Beach—Los Angeles County Sanitation Dist. 3, 1206 Maple Ave., 5,280 ft. 51 and 54 in. rein.-con., Long Beach Interceptor Trunk Sewer Unit 4, $100,000. A. M. Rown, dist. engr. CD 10/17.

About January 2

●Tenn., Chattanooga—City, City Hall, sanitary sewers, treatment plant. $5,000,000. Polk, Powell & Hendon, Chamber of Commerce Bldg., Birmingham, Ala., and L. A. Schmidt, Jr., Chattanooga Bank Bldg., engrs. CD 10/17.

Bids Asked

Tex., Dallas—Bailey Johnson Co., Lake June Rd., sanitary and storm sewers, Oak Hill Park Annex. $60,000.

Tex., Fort Worth—Taylor-Todd Corp., 1st Natl. Bank Bldg., sanitary and storm sewers off Mitchell Blvd. and adjacent Masonic Home. $50,000. Easterwood & Easterwood, 404 Bewley Bldg., project engrs.

LOW BIDDERS

Calif., Woodland—City, City Hall, Nov. 7, sewage treatment plant, from A. L. Miller, 1715 7 St., Sacramento, **$121,000.** CD 10/7.

Ill., Aurora—Sanitary Dist., 15 Fox St., approx. 8,600 lin. ft. 14-to 24-in. c.i. sewer extens., northwest area, from Orfel Constr Co., 1818 Lake St., Melrose Park, **$54,755,** Walter E. Deuchler, 15 Fox St., city engr.

Mass., Middleboro—Town, Bd. Selectmen, Middleboro, Nov. 7, furnishing, laying sewer pipes, force main and appurtenant structures, bldg. ejector station, constr. sewerage treatment plant, etc., Northeast of North and Everett Sts., from Thomas Bros., 267 Wareham St., **$268,259.** CD 10/26.

N. M., Gloucester—Gloucester City Sewage Auth., sewage treatment and refuse incinerator plant, Contrs. 1 to 7, from C & T Constr. Co., 810 Haddon Ave., Collingswood, **$794,224;** sanitary sewers in connection with new sewage plant from ABC Excavation Co., 718 Market St., Camden, **$237,055.** Andrews & Gleseke Inc., 1045 W. Erie Ave., Phila., Pa., engrs. ●

R. I., East Providence—State, and Providence Plantation, F. A. Adams, purch. agt., State House, Providence, Nov. 10, Contr. 12, division structures and temporary chlorination, from Westcott Constr. Co., 42 Weybosset St., Providence, Alt. 1 **$132,250,** Alt. 2 **$133,670.** CD 10/26.

Tex., Dallas—City, Earl Goforth, secy., City Hall, Main and Harwood Sts., storm sewers in Coombs Creek Dr., from Texas Bitulithic Co., 111 Commerce St., **$50,000.** CD 12/1/48.

Tex., Houston—City, City Hall, 900 Brazos St., Nov. 12, storm sewers, Main, Richmond and Dunlavy Sts., from Farnsworth & Chambers, Box 74, **$298,656,** Est. $400,000. R. W. Lee, c/o owner, city engr.

CONTRACTS AWARDED

Ark., Benton — City, sewerage treatment plant, to Tri-States Constr. Co., Hall Bldg., Little Rock, **$88,400.** Bids 11/8. CD 10/25.

R. I., Providence—State of Rhode Island, Blackstone Valley Auth., Wm. T. Halloran, chn., interceptor sewers, Sect. B, to Marinucci Bros. & Co., Inc., 51 Ceylon St., Dorchester, Mass., **$946,133.** Bids 11/1. CD 11/10, under LB

Calif., Los Angeles—Los Angeles Sanitation Dist. 2, 1206 Maple Ave., 3 mi. 18 in. Downey Ave. Extension Trunk Sewer, in Hynes, to Beheck & Rrkich, 5025 E. Slauson Ave., **$124,-811.** Bids 10/26, awarded 11/9. CD 9/27.

Tex., Dallas—Dallas Building Corp., 2nd unit of Santa Fe Bldg., sanitary and storm sewers, to Williams & Wagner Constr. Co., 8515 Preston Rd., Approx. **$75,000.**

Tex., Houston—Bayou Park Apartments, c/o Joseph B. Reynolds, engrs., 2518 Times St., sanitary and storm sewers, own forces. Approx. **$60,000.**

Tex., Houston—Harris County Water Control & Imprvt. Dist. 8, Ray D. Henderson, 6624 Foster St., sewer collection lines, to Brown & Root, Inc., Box 3, **$98,215,** Joe J. Rady, 811 Insurance Bldg., Fort Worth, engr. CD 6/14.

Tex., Houston—Owner, c/o E. S. & Robert M. Atkinson, engrs., 745 1st. Natl. Bank Bldg., storm and sanitary sewers, own forces. **$55,000.** CD 11/3.

Tex., San Antonio—U. S. Land Co., Transit Tower, sanitary and storm sewers, to McElwrath Bros., 439 Frederick Rd., **$58,000.**

BRIDGES

BIDS ASKED

STATE HIGHWAY LETTINGS

December 2
Missouri
December 6
Maryland

December 7
Kansas
December 8
California

December 21
Pennsylvania

November 29

†Kan., Kansas City—U. S. Eng., 601 Davidson Bldg., Kansas City, Mo., Zone 8, installing lifting mechanisms for Chicago, Rock Island & Pacific Ry. bridge at mile 2.01 on Kansas River, Serial No. CIVENG 23-028-50-53. Extended date. CD 10/7.

LOW BIDDERS

Ill., Alton—City, City Hall, bridge, over Gulf, Mobile & Ohio R.R., Elm St., from J. J. Woellner Constr. Co., 101 Oak St., **$59,542.** Sheppard Morgan & Schwaab, 9 E. Broadway, engrs. CD 4/8/46.

†Kansas—U. S. Eng., 601 Davidson Bldg., Kansas City, 8, Mo., Nov. 4, furnishing, installing lifting mechanism for Union Pacific R. R. Bridge, over Kansas River at Kansas City, Kan., CIVENG-23-028-50-32, from L. G. Barcus & Sons, 1430 State Ave., Kansas City, Kan., **$175,315.** Est. $465,040. CD 10/4.

Texas—State Hy. Comn., Austin, Nov. 14, Bosque River Bridge, approaches 2.639 mi. Hy. FM 56 and 215, Proj. S. 168 (2) and S. 507 (3), Bosque Co., from J. R. Fanning, 1712 13 St., Lubbock, **$166,651.** CD 10/25.

STREETS AND ROADS

BIDS ASKED

STATE HIGHWAY LETTINGS

November 29
Maryland
Massachusetts
November 30
Newfoundland
December 2
Kansas
Missouri

December 6
Massachusetts
December 7
California
Kansas
December 8
California

November 28

N. Y., Brooklyn—President Brooklyn Boro, Boro Hall, Zone 2, grading Farragut Rd., from E. 98 St. to railroad right-of-way in Turnbull Ave. and from railroad right-of-way in Turnbull to Williams Aves.; Foster Ave. from E. 103 St. to railroad right-of-way in Turnbull Ave. and from railroad right-of-way in Turnbull Ave. to E. 108 St.

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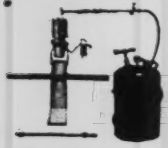

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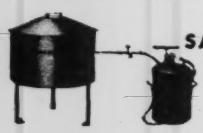

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December 16

Tex., Nederland—Jefferson Co., W. W. Kent, judge, Beaumont, road work, b. conc. surf., drainage, Nederland-Port Neches Rd. $175,000. Charles L. Davidson, co. engr. CD 12/21/48, under LB.

Bids Asked

Tex., Dallas—Bailey Johnson Co., Lake June Rd., asph. paved streets, concrete curbs and gutters, sidewalks, Oak Hill Park Annex. $75,000.

Tex., Fort Worth—Taylor-Todd Corp., 1st. Natl. Bank Bldg., street constr. and paving, off Mitchell Blvd. and adjacent Masonic Home. $60,000. Easterwood & Easterwood, 404 Bewley Bldg., project engrs.

LOW BIDDERS

La., New Iberia—City, c/o mayor, approx. 19,665 sq. yd. concrete sidewalks, etc., from James R. Evans, P. O. Box 806, Bogalusa, **$57,365.** M. Rochel, New Iberia, engr. CD 10/17.

Minnesota—State Hy. Dpt., St. Paul, Nov. 4, grading, b. conc. 15.3 mi. Ramsey Co., S. P. 1102-03 (TH 2-8), Minn. proj. F 280 (4), from Farrell Contg. Co., 1607 Wynne St., St. Paul, **$407,888.** CD 10/19.

Texas—State Hy. Comn., Austin, Nov. 14, flexible base and double asph. surf. tr. 7.332 mi. Hy. 87, Proj. F 293 (3), Mason Co., from T. C. Cage & Dean Skinner, P. O. Box 4057, Austin, **$223,964*****flexible base and single asph. surf. tr. 12.846 mi. Hy. FM 681 and FM 1017, S. 1444 (1) and S. 1445 (1), Hidalgo Co., from H. B. Zachry Co., P. O. Box 2570, San Antonio, **$72,493*****shell concrete base and cold mix limestone rock asph. Hy. FM 517, V 978-1-2, C 978-2-2 and C 976-3-6, Galveston Co. from Austin Road Co., P. O. Box 1590, Dallas, **$207,030*****roadbed tr. and base preservative 7.518 mi. Hy. FM 1120, Real Co., from Strain & Brown, Inc., San Angelo, **$57,843** est $52,000***flexible base and asph. surf. tr. 23.677 mi. Hy. FM 1111, Proj. R-1282-2-1, Hudspeth Co., from O. D. Burleson, Alpine, **$102,190*****foundation course, prime coat and single asph. surf. tr. 9.919 mi. Hy. FM 929, S. 1190 (1), Coryell Co., from Wesley Hall, Brownwood, **$75,051*****flexible base and double asph. surf. tr. 36.357 mi. Hy. FM 1058, S. 1309 (1), Deaf Smith Co., from J. R. Fanning, 1712 13 St., Lubbock, **$419,614.** CD 10/25, 10/27 and 10/28.

Tex., Austin—City, City Hall, Nov 8, 5 mi. asph. paving various parts of city, from Collins Constr. Co., 2821 N. 19 St., **$337,385.** Est. $393,000. CD 10/26.

Tex., Dallas—City, City Hall, Main and Harwood Sts., Nov. 7, asph. paving 5 streets in Oak Cliff, from Dallas Foundation Co., Inc., 3113 R Elm St., **$50,000.** CD 12/1/48.

CONTRACTS AWARDED

Kansas—State Hy. Dpt., Johnson, grading 1.645 mi. and 2 units 85x3@45x35 ft. continuous rein.-con. slab span bridge 160-94-10.4, Station 101 plus 97.86, 160-94-S 129 (2), Stanton Co., to Inland Constr. Co., 3869 Leavenworth St., Omaha, Neb., **$89,221.** CD 10/24.

Massachusetts—Commonwealth of Mass., Dpt. P. Wks., Boston, hy. relocation Rte. 2, Ayer Rd. to Foster Rd., Harvard and Littletown, to Carlo Bianchi & Co., Inc., 24 Union St., Framingham, **$1,465,385.** Bids 11/1, awarded 11/8. Proj. 11 (4), under LB.

Minn., Richfield—Village, J. R. Stewart, clk., street imprvs., to Park Constr. Co., 1405 11 Ave. S., Minneapolis, Specs. A and B **$52,577.** Bids 11/4.

Tex., Bailey—Fannin County Road Dist., Bonham, road imprvs., grading, surf. drainage, force account. Approx. **$80,000.**

Tex., Corpus Christi—Nueces Co., Courthouse, road reconstr. and asph. surf., Precinct 1, Approx. **$75,000;** Precinct 3, Approx. **$50,000;** Precinct 4, Approx. **$125,000,** force account. Grand total $250,000. J. R. Laurence, co. engr. CD

Tex., Dallas — City, City Hall, Main and Harwood Sts., street constr. and asph. paving Frances St., to Dallas Foundation Co., 3113 Elm St., **$50,000.** Bids 11/8. CD 12/1/48.

Tex., Houston—Bayou Park Apartments, c/o Joseph B. Reynolds, engr., 2518 Times St., street constr. and asph. paving, own forces. Approx. **$50,000.**

Tex., Houston—Harris Co., Comrs. Court, Courthouse, repairing, reconditioning, shelling, grav. farm-to-market roads in low water areas, force account. Approx. **$90,000.** Hugo Zapp, co. engr. CD 8/28/47.

Tex., Houston—Owner, c/o E. S. & Robert M. Atkinson, engrs., 745 1st. Natl. Bank Bldg., c. conc. paving, own forces Approx. **$70,000.** CD 11/3.

Tex., McCamey—City, asph. street paving to Dailey & Hollfield, 1814 Transit Tower, San Antonio, **$57,500.** C. W. Brown, c/o owner, engr.

Tex., San Antonio—Bear Co., Courthouse, repairing, grading, re-conditioning surf. roads, Precinct 3, Approx. **$80,000;** Precinct 4, **$85,000,** force account. Russell White, c/o owner, co. engr.

Tex., San Antonio—U. S. Land Co., Transit Tower, road constr. and asph. paving, to McElwrath Bros., 439 Frederick Rd, **$63,000.**

EARTHWORK, WATERWAYS

BIDS ASKED

About November 29

†**Missouri**—U. S. Eng., 826 U. S. Court House & Custom House, St. Louis, Zone 1, clearing, snagging approx. 2.8 mi. along South Bank of Ramsey Creek and approx. 2.3 mi. along th North Bank of Ramsey Creek, Missouri Stat Hy. 79, in Pike Co., near Clarksville.

November 29

†**Arkansas**—U. S. Eng., foot of Prytania St New Orleans, 9, La., approx. 313,000 cu. yc semi-compacted earthwork, etc., on Red Rive below Denison Dam Levees, New Orleans Dist Garland and Miller Co. 3 Levee Dists., leve enlargement, CIVENG 16-047-50-126.

November 30

†**Washington**—Bureau Reclamation, Coule Dam, earthwork and concrete foundations fo Ephrata Office Building, Columbia Basin Proj Spec. 2836. L. N. McClellan, Bldg. 1-A Denve Federal Center, Denver, Colo., ch. engr.

N. S., Parker's Cove—J. M. Somerville, secy Dpt. P. Wks., Hunter Bldg., Ottawa, Ont breakwater repairs. Approx. $68,000. Plan deposit $20. R. Blais, c/o owner, engr.

December 1

†**Oregon**—U. S. Eng., 19 E. Poplar St., Wall Walla, Wash., furnishing, installing, testin culvert unwatering pumps and appurtenance for navigation lock at McNary Dam.

†**Texas**—U. S. Eng., 606 Santa Fe Bldg. Galveston, Part 1, reservoir clearing, Benbrool Dam and Reservoir, Clear Fork, Trinity River 10 mi. southwest of Fort Worth, Inv. CIVENG 41-243-50-75. $275,000. CD 6/9/44.

†**Texas**—U. S. Eng., 606 Santa Fe Bldg., Gal veston. Part 1, reservoir clearing, Lavon Dan and Reservoir, East Fork of Trinity River Trinity River and Tributaries, in Collin Co approx. 7 mi. north of Rockwall, 2 mi. west o Lavon and 25 mi. northeast of Dallas, CIV ENG-41-243-50-76. CD 6/9/44.

†**Texas**—U. S. Eng., 606 Santa Fe Bldg., Gal veston. Contr. 2, moving 3,000,000 cu. yd earth for portion embankment for Garza Little Elm Reservoir, near Lewisville. $550,000 CD 6/9/44.

†**Wyoming**—Bureau Reclamation, Dpt. Interior Bldg 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Casper, Wyo., misc. structural steel, handrailings and gratings, inc. accessories and fasteners for field erection for Kortes Dam and Power Plant, Kortes Unit, Missouri River Basin Proj., Spec. 2830. L. N. McClellan, ch. engr.

†**Wyoming**—Bureau Reclamation, Dpt. Interior, Cody, furnishing, placing cement-mortar lining for Shoshone River siphon, Shoshone Proj., approx. 4 mi. west of Cody, Choshone Proj., Spec. 2823. L. N. McClellan, Bldg. 1-A, Denver Federal Center, Denver, Colo. ch. engr.

December 2

†**Oklahoma**—U. S. Eng., P. O. Box 61, Tulsa, Zone 1, relief wells and toe drainage sys., Canton Dam, CIVENG-34-066-50-52. $140,000. CD 4/16/45.

†**Tex., Port O'Connor**—U. S. Eng., 606 Santa Fe Bldg., Galveston, repairing Northwest Jetty, Inv. No. CIVENG-41-243-50-99. CD 9/19/45.

December 6

†**Arizona**—Bureau Reclamation, Dpt. Interior, Yuma, earthwork, tunnel, canal lining, structures, Wellton-Mohawk Canal, Station 456 plus 00 to Station 969 plus 64 Wellton-Mohawk Div., from 18 to 25 mi. east of Yuma, Gila Proj., Spec. 2822. L. N. McClellan, Bldg., 1-A, Denver Federal Center, Denver, Colo., ch. engr. CD 1/12/44.

†**Virginia**—U. S. Eng., foot of Front St., Norfolk, maintenance dredging Deep Creek and Dismal Swamp Canal, Atlantic Intracoastal Waterway, Inv. Serial No. CIVENG-44-110-50-33, Spec. No. 622.

December 7

N. S., Port Maitland—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., breakwater reconstruction, exten. Approx. $180,000. Plans deposit $25. R. Blais, c/o owner, engr. CD 4/8/46.

December 8

†**Oregon**—U. S. Eng., Pittock Block, Portland, Zone 5, repairing pile dikes and construct dolphins at designated locations in Columbia River between mouth of Willamette River and Bradwood, CIVENG-35-026-50-156.

On or About December 13

†**Arkansas**—U. S. Eng., P. O. Box 97, Memphis, Tenn., placing approx. 670,000 cu. yd. earthwork, Approximate Levee Stations 23 plus 8 and 27 plus 22, Blue Chane, Levee Item No. R-205, St. Francis Drainage District, Clay and Greene Counties, Inv. Serial No. CIVENG-40-041-50-64.

December 13

†**Arizona and Nevada**—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del f.o.b. cars shipping point or f.o.b cars Yuma, Ariz., control switchboard, supervisory control and telemetering switchboard and equip for Gila substation for controlling and telemetering Pumping Plants 1, 2 and 3 from Gila substation; supervisory control and telemetering switchboard and equip. for Pumping Plant No. 1 for operation from Gila substation controlled station supervisory control and telemetering switchboard and equip. for Pumping Plant No. 2 and switchyard for operation from Gila substation, supervisory control and telemetering switchboard and equip for Pumping

(Continued on page 112)

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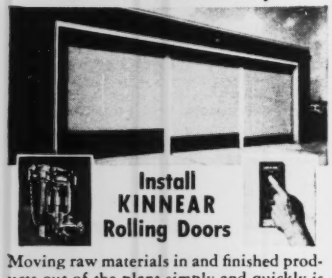

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(Continued from page 110)

Plant No. 3, for operation from Gila substation, 1 lot apparatus for supervisory control, selective telemetering and continuous telemetering for Pumping Plants 1, 2 and 3 and Gila substation; coaxial carrier-frequency cable substation with dry-type transformer for Pumping Plants 1, 2 and 3 and the Gila substation, Davis Dam and Gila Projs., Spec. 2820. L. N. Mc Clellan, ch. engr. CD 9/21/44.

†California — Bureau Reclamation, Friant, earthwork, concrete lining and structures, Station 6078 plus 15, to Station 6995 plus 10, Friant-Kern Canal, approx. 7 mi. northeast to approx. 10 mi. south of Delano, Central Valley Proj., Spec. 2834. L. N. McClellan, ch. engr.

†Montana — Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Lousiville, approx. 280,000 bbl. portland cement in bulk under Schedule 1, and approx. 22,600 tons pozzolan in bulk under Schedule 2 or approx. 75,000 tons portland-pozzolan cement in bulk under Schedule 3, for construction Canyon Ferry Dam and Power Plant, Canyon Ferry Unit, Missouri River Basin Proj., Spec. 2835, L. N. McClellan, ch. engr.

†Tennessee—U. S. Eng., P. O. Box 97, Memphis, Zone 1, approx. 6 mi. channel clearance involving approx. 160,000 cu. yd. excav. along Middle Fork of the Forked Deer River in Madison and Carroll Counties, from below the bridge on U. S. Hy. 70 crossing the Middle Forks, approx. 4.7 mi. northwest of Springcreek, exten. downstream in southwesterly direction for approx. 6 mi., Serial No. CIVENG-40-041-50-63.

December 14

†New Jersey—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., maintenance dredging in Delaware River, East of Burlington, Inv. No. CIVENG 36-105-5027.

On or About December 15

†Missouri—U. S. Eng., 1709 Jackson St., Omaha, 2, Neb., Agricultural Levee Unit L-550, Rock Creek from mouth of C. B. & Q. R. R. Bridge, near Rockport, Atchinson Co., CIVENG 25-066-50-90.

On or About December 16

†Nebraska—U. S. Eng., 1709 Jackson St., Omaha, Zone 2, underseepage control facilities for Omaha Levee System, Florence Lake area, CIVENG-25-066-50-91.

December 22

†Texas—U. S. Eng., 606 Santa Fe Bldg., Galveston, spillway, Lavon Dam and Reservoir, Trinity River and Tributaries, in Collin Co., approx. 7 mi. north of Rockwall, 2 mi. west of Lavon and 25 mi. northeast of Dallas, CIVENG-41-243-50-78. CD 6/9/44.

January 3

†Alaska—U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., dredging and disposal of materials, Wrangell Narrows, approx. 24 mi. long between Mitkof Island in east and Lindenberg Peninsula of Kupreanof Island on west, connecting Sumner Strait on the south with Frederick Sound on the North.

LOW BIDDERS

Illinois—Dpt. P. Wks. & Bldgs., Div. Waterways, channel imprvs., incl. excavation, dredging channel between Nippersink and Pistakee Lakes and channel imprvs. between Petite and Bluff Lakes, Fox Chain of Lakes, Lake Co., from Ray Pregenzer, Antioch, **$49,125.** CD 4/13/45.

†New Jersey—U. S. Eng., 80 Lafayette St., New York 13, N. Y., Nov. 10, dredging Raritan River, from The Arundel Corp., Pier 2, Pratt St., Baltimore, Md., A-Sect. 1-4, **$109,760**; B-Sect. 5-11, **$128,570.** CD 11/2.

†New York and New Jersey—U. S. Eng., 80 Lafayette St., New York 13, N. Y., Nov. 7, dredging, Sect. 2, Areas 1 to 4, New York-New Jersey Channels, Serial No. CIVENG-30-075-50-5, from The Arundel Corp., Pier 2, Pratt St., Baltimore, Md., **$409,185.** CD 10/20.

†Oklahoma—U. S. Eng., Box 61, Tulsa, bank protection and embankment work at Webber Dam, Leflore Co., from Clark & Farrell, 501 Morrison St., Hot Springs, Ark., Zone 1, **$140,-313.** Est. $175,000. CD 8/30/45.

Tex., Denton—North Texas State Teachers College, reconditioned unopened fields to have been opened Nov. 3, grading for athletic and recreational fields. **$30,000.** CD 10/26.

●†Washington — Bureau Reclamation, Dpt. Interior, Coulee Dam river channel imprvs., Grand Coulee Dam, Columbia Basin Proj., Spec. 2808, from Morrison-Knudsen Co., Inc., Hoge Bldg., Seattle, **$1,691,666.** Est. $2,116,650. CD 10/5.

†Wash., Arlington—Yards & Docks Annex, Navy Dpt., Arlington, Va., Nov. 9, clearing 250-acre site for Jim Creek Naval Communication Station, from R. Corning, Deming, **$170,-430.** CD 9/22.

CONTRACTS AWARDED

†Idaho—Bureau Reclamation, Dpt. Interior, Minidoka Proj., North Side Pumping Div., Schedules 1, 2, 3, 5, 7, drilling and testing 5 water supply wells near Rupert, Spec. R1-56 (Region 1), to R. J. Strasser Drilling Co., 8110 S. E. Sunset Lane, Portland, Ore., **$33,169.** Bids 10/13, awarded 10/27. CD 9/22.

Ia., Algona—Kossuth Co., ditch work, incl. cleaning out, deepening 9.3 mi. open ditch and level spill banks, 122,690 cu. yd. excav., install 100 surf. inlets, 50 tile outlets, clear and grub 1,892 trees in Drainage Dist. 80 and lateral of Dist. 80, to Cooper Constr. Co., Fort Dodg **$38,454.** Bids 10/25. CD 10/19.

N. D., Cavalier — Pembina Co., Cavalie drain constr., to Barnard & Curtiss, Phoent Bldg., Minneapolis, Minn., **$50,752.** Bids 11/

Tex., Laredo—Central Power & Light C 120 N. Chaparral St., Corpus Christi, da and reservoir, Unit 1, to Killian-Keller C Box 1981, San Antonio, **$57,325.** CD 11/1 under CA.

Tex., San Antonio—E. J. Burke & Sons, 42 S. Zarzamora St., site grading for 1,200 hou ing zone, in extension of Highland Hills, R. E. Lanham, 715 E. Josephine St., Appro **$46,000.** Harmon & O'Donnell, Temple Cou Bldg., Denver, Colo., engrs.

AIRPORTS AND AIRBASES

BIDS ASKED

November 30

†Fla., Jacksonville — FACILITIES — U. Eng., P. O. Box 4970, Jacksonville, O. R. facilities incl. vehicle shed, pavement, fenc Jacksonville Naval Air Station, Inv. No. EN 08-123-40-1.

December 6

†Fla., Jacksonville—AMMUNITION LOCKE —Charleston Naval Base, P. O. Box 36 Charleston, S. C., ammunition locker at Nav Auxiliary Air Station, Cecil Field, near her NOY 19422—Spec. 23137. Plans deposit $10.

Tex., Waco—TERMINAL—City, airport te minal. $200,000. Plans deposit $25. N. Wiedemann, 614 Liberty Bldg., archt. L. Kanto, N. P. Anderson Bldg., Fort Worth, an A. C. McAdams, Majestic Bldg., Fort Wort engrs. CD 9/28.

December 9

†S. D., Rapid City—SHOP—U. S. Eng., 17 Jackson St., Omaha 2, Neb., shop facilitie for H. B. Hangar, Rapid City Air Force Bas Weaver, Serial No. 25-066-50-81. CD 10/19.

CONTRACTS AWARDED

●Mass., East Boston—TAXIWAYS, etc.—Com monwealth of Mass., State Airport Manage ment Bd., Administration Bldg., Logan Air port, taxiways and aprons, Logan Airport, M. DeMatteo Constr. Co., 200 Hancock St Quincy, **$2,328,874.** Bids 10/15, awarded 11/1 CD 10/26, under LB.

PUBLIC BUILDINGS

BIDS ASKED

November 28

N. Y., Jamaica—BUS GARAGE—Bd. Trans portation, 250 Hudson St., New York, Zone 1 general contract Jamaica Bus Garage addn South Rd. east of 165 St., Queens Boro.

November 29

Ark., Russellville—ARMORY—Military Dpt State Capitol Bldg., Little Rock, armory. Plan deposit $25. Extended date. Wittenberg, Delon & Davidson, 402 Pyramid Bldg., Little Rock archts. CD 11/2.

†Colorado — GARAGES — Bureau Reclama tion, Dpt. Interior, Bldg. 1-A Denver Federa Center, Denver, materials and erection on 12-car garage and one 9-car garage fo Loveland Government Camp, Colorado-Bi Thompson Proj., Spec. R-7-87 (Region 7). I N. McClellan, ch. engr.

W. Va., Morgantown — LIBRARY, etc. — West Virginia University, Morgantown, 3 story, bsmnt., steel, concrete brick, ston library addn., alterations, $500,000. Tucker Silling, Masonic Bldg., Charleston, archts CD 10/20.

Miss., Oconomowoc—SCHOOL—Bd. Educ. Oconomowoc, 1 story, 165x250 ft., brick, steel blocks school, concrete fdn. and floor. $300,000 Ebling, Plunkett & Keymar, 1220 N. Mil waukee St., Zone 2, archts. CD 7/21.

November 30

Ill., Lake Villa—SCHOOL—School Dist. 41 Olive Martin, secy., 2 story, brick, stone school $250,000. Thos. J. Higgins, 228 N. LaSalle St. Chicago, Zone 1, archt.

●Mass., Fall River—HOUSING—City of Fal River Housing Auth., City Hall, 2 story, 13 unit, wood housing, North End, Herman St. Pleasant View, $1,400,000. E. M. Corbett, 4 Purchase St., and S. T. Dubitsky, 41 North Main St., archts. CD 2/13.

N. H., Lancaster—SCHOOL—Town, Schoo Bd., Lancaster, 2 story, bsmnt., brick, stee school. $275,000. Perley F. Gilbert Assoc., 5 Central St., Lowell, Mass., archts. CD 6/30.

N. C., Goldsboro—BUILDINGS—State Hos pital, R. M. Purser, bus. mgr., Goldsboro 411,348 cu. ft. farm colony bldg. Plans de posit $20 general, $10 each mechanical work H. Raymond Weeks, Inc., Durham, archt Wiley & Wilson, 905 Peoples Bank Bldg. Lynchburg, Va., engrs.

Pa., Greensburg—DRIVING COURSE, etc.— Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, driving course and clinic bldg. for Pennsylvania State Police. Plans deposit $5. Robert J. Brocker, 201 Coulter Bldg., engr. and archt.

About December 1

●Miss., Greenwood — HOSPITAL — City and Leflore Co., hospital, $1,000,000. Chas. H. McCauley, Jackson Bldg., Birmingham, Ala., archt.

Miss., Pascagoula — WAREHOUSE — Pascagoula Port Comn., c/o Donald J. Simmons, engr., Pascagoula, warehouse. Approx. $75,000. CD 7/9/47.

December 1

†Md., Annapolis—BLDG. ALTERATIONS—P. Wks. Office, U. S. Naval Academy, Annapolis, altering Bldg., 14. U. S. Navy Communication Station, Spec. 23217. Plans deposit $10.

●N. J., Trenton—LABORATORY—Yards & Docks Annex, Navy Dpt., Arlington, Va., Naval Aeronautical Laboratory, cooling and dehumidification work, etc., Approx. $1,000,000.

December 2

Ky., Lebanon—HOSPITAL—Literary Society of St. Catherine of Sienna, 2 story, Mary Immaculate Hospital, $400,000. Plans deposit $25. T. J. Nolan & Sons, Ky. Home Life Bldg., Louisville, archs. CD 12-26.

S. D., Brookings—PRINTING JOURNALISM—State of South Dakota, Pierre, printing and rural journalism bldg. at South Dakota State College, $250,000. Hugill, Blatherwick & Fritzel, 367 Boyce Greeley Blk., Sioux Falls, archts. CD 6/19.

December 3

La., Winnfield — SCHOOL — Winn Parish School Bd., Winnfield, Winn Parish Training school gymnasium and auditorium bldg., Plans deposit $20. Barron & Heinberg, 512 Guaranty Bank Bldg., Alexandria, archts.

December 5

O., Canal Fulton—HIGH SCHOOL—Bd. Educ., Mrs. Virginia Gillman, clk., Canal Fulton, Canal Fulton High School addn.

December 6

†Ill., Dwight — CONNECTING CORRIDORS—Veterans Admin., Vermont Ave., between H & I Sts. N. W., Wash., 25, D. C., connecting corridors between Bldgs. 1 and 2, and entrance driveway for Veterans Administration Hospital, Spec. 4949, Proj. No. 7-4218.

December 6

†Nebraska—CARETAKERS FACILITIES—Bureau Reclamation, Dpt. Interior, Indianola, caretaker's facilities at Medicine Creek dam and Cambridge diversion dam. Frenchman-Cambridge Div., Spec. R7-92 (Region 7), Missouri River Basin Proj.

N. Y., Long Island City—HOUSING—New York City Housing Auth., 250 Park Row, New York, Zone 7, general contract, heating and ventilating, electrical and plumbing for Sect. II, incl. Comfort Station and Buildings numbered 18 to 31 (inclusive) of Ravenswood Houses (Proj. No. NYC-20) in area bounded by 34 Ave., 21 St., 36 Ave. and 12 St., Queens Boro. Plans deposit $75. Extended date. CD 11/2.

December 7

●Calif., Sacramento—HOSPITAL—Sacramento Co., Courthouse, 4 story, 400 bed rein.-con., steel County Hospital addn. $1,000,000. Plans deposit $100. Geo. Sellon, California State Life Bldg., archt. CD 3/22/48.

●Mass., Chicopee—HOUSING—Chicopee Housing Auth., Chicopee, 150 units housing Project 200-1, Montgomery St., Approx. $1,500,000. Plans deposit $100. Henry J. Tessier & Morris W. Maloney, 200 Dwight St., Springfield, archts. CD 8-5.

Minn., Rochester — MEDICAL — State Dpt. Admin., P. T. Peterson, dir. Purchases, 19 State Capitol, St. Paul, medical and surgical bldg. at State Hospital, $600,000. Plans deposit $30. Ellerbee & Co., E. 505 First National Bank Bldg., St. Paul, archts. CD 10/17/47.

N. Y., Riverhead—HEADHOUSE—Bureau Contracts & Accounts, Albany, headhouse at Long Island Vegetable Research Farm, New York State College of Agriculture. Plans deposit $5.

December 8

Calif., San Jose — TELESCOPE — Bd. Regents University of California, Berkeley, 102 ft. steel telescope bldg., incl. elevator, heating and ventilating, mechanical drives-air-conditioning, concrete work, etc., Mount Hamilton Campus, $500,000. Plans deposit $50. John G. Case, 811 W. 3 St., Los Angeles, engr. CD 6/28.

Minn., Owatonna — SCHOOL — Bd. Educ., Vera Hinderman, clk., 3 story school, $500,000. Plans deposit $25. CD 11/11.

†Alaska, Palmer—HOUSES, etc.—U. S. Dpt. Agriculture, c/o Chief, Div. of Purchase, Sales & Traffic, 14 St. and Independence Ave. S. W., Wash. 25, D. C., 7 houses, with sewers, waterlines and roadwork for Agricultural Research Admin., Spec. USDA No. 46-50. Plans deposit $10.

December 9

La., Baton Rouge—DORMITORY—La. State University, Baton Rouge, 2 story, bsmnt., concrete, brick, tile, 28,000 sq. ft. athletic dormitory. Plans deposit $25. Aug. Perez & Assoc., Audubon Bldg., New Orleans, archts.

December 10

O., Dover—HOSPITAL—Bd. Trustees of Union Hospital, 202 E. 12 St., 2 story, bsmnt. Union Hospital addn., remodeling. $909,609. Charles J. Marr, 138 Ray Ave., New Philadelphia archt. H. W. Howard, 2530 Ridgewood Rd., Akron, electrical engr. CD 4/8.

December 12

O., Columbus—CHILDRENS HOME—Comrs. Franklin Co., Courthouse, cottage-type county childrens home, Frank Rd. east of Briggsdale, Extended date. CD 10/24.

December 13

Minn., Wayzata—SCHOOL—Bd. Educ., Consolidated School Dist. 144, C. H. Meyer, clk., high school, $500,000. Plans deposit $20. Haxby, Bissell & Belair, 1111 Nicollet Ave., Minneapolis, archts. CD 11/11/48.

†Oregon—HOUSES—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., 14 permanent houses at McNary Lock and Dam on Columbia River, Umatilla Co. CIVENG-45-104-50-53.

December 15

La., Shreveport—HOUSING—City of Shreveport Housing Auth., City Hall, Elamito Terrace Housing Proj. La 2-1. Plans deposit $50. Neild & Somdal, Texas Eastern Bldg., archts. CD 10/24.

†Oklahoma—POWERHOUSE and SWITCHYARD—U. S. Eng., P. O. Box 61, Tulsa 2, powerhouse and switchyard, Fort Gibson Dam Power Development, Grand (Neosho) River, Inv. No. CIVENG-34-066-50-50. CD 10/18.

●†Tenn., Oak Ridge — LABORATORY — U. S. Atomic Energy Comn., P. O. Box E, construct Instrument Laboratory Bldg. 3, at Oak Ridge National Laboratory, X-10 area, Roane Co., Inv. No. 401-50-2A. Plans deposit $25. Caustin Co., 16112 Euclid Ave., Cleveland, O., archts.

December 16

N. Y., Ilion — SCHOOL — Bd. Educ., Ilion, school addn. $300,000. Rice & Baird, Mayro Bldg., Utica, archts. CD 8/29/47.

December 20

†Pa., Coatesville — HOSPITAL — Veterans Admin., Munitions Bldg., Wash., D. C., altering Acute Bldg. 39 (women) for Veterans Admin. Hospital, Spec. 4941. Proj. No. 3-4088.

†Washington — AMPERE BUS STRUCTURES, etc.—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Odair, ampere bus structures with current transformers, potential transformers, disconnecting switches, grounding switches and generator-protective equip. for Grand Coulee Power Plant, Columbia Basin Proj., Spec. 2827. L. N. McClellan, ch. engr.

About January 1

Ind., East Chicago—SCHOOL—Bd. School Trustees, 2 story, bsmnt., brick, rein.-conc., structural steel, 8060 cu. ft Eugene Field School, $900,000. M. S. Bittner, 721 W. Chicago Ave., archt. CD 1/7/48.

N. Y., Cambridge—SCHOOLS—School Dist. 10, Cambridge, elementary and high school. $935,000. Ryder & Link, 122 Jay St., Schenectady, archts. CD 7/12/46.

January 5

●Calif., Davis — RESIDENCE HALLS—Bd. Regents University of California, Berkeley, 18 three story rein.-con. frame residence halls, $1,000,000. Plans deposit $50. Herbert Goodpaster, Mitau Bldg., Sacramento, and W. C. Hayes, 2924 Derby St., Berkeley, archts. CD 8/19/48.

January 10

Fla., Miami—AUDITORIUM—Dade Co., Miami, auditorium, $750,000. Steward & Skinner, 223 S. W. 1 St., archts. CD 11/9/44.

About May 2

Kan., Leavenworth—SCHOOL—Bd. Educ., Hugh C. Bryan, supt., Times Bldg., 10 room brick, concrete school. CD 9/16.

Bids Asked

●N. Y., Homer—HIGH SCHOOL, etc.—Bd. Educ., Homer Central School Dist., Homer, high school and grade school. Bids June 16 rejected. L. B. **$848,075** and **$531,666** respectively. CD 7/7, under LB.

LOW BIDDERS

Calif., Beaumont — HOSPITAL — San Gorgonio Pass Memorial Dist., 11 San Gorgonio St., Banning, Nov. 7, 1 story, 25,000 sq. ft. rein.-con. hospital, from M. C. Foy & Sons, 63414 E. Whittier Blvd., Los Angeles. **$349,141**. Est. $450,000. CD 10/13.

Colo., Denver—SCHOOL—School Dist. 1, 414 14 St., Nov. 9, general contract 2 story 81,965 sq. ft. Gilpin School, 29 and Stout Sts., from Mead and Mount Constr. Co., Denver National Bank Bldg., **$737,000**. CD 10/5

In., Mount Pleasant—HOSPITAL—State Bd. Control, E. 12 and Court Sts., Des Moines, Nov. 8, general contract, patient bldg. at Mt. Pleasant State Hospital, from Carl A. Nelson & Co., Burlington, **$268,326**, Seth A. Arthur Temple, 604 Putnam Bldg., Davenport, archts. CD 10/18.

Kan., Liberal — SCHOOL — School Dist. 2, Nov. 1, general contract industrial arts bldg. and gymnasium high school addn., from Jensen & Ridge, 416 S. Market St., Wichita, **$377,360**. Mann & Co., Hutchinson, archts. CD 10/6.

Mass., Quincy—SCHOOL, etc.—City, P. Wks. Dpt., City Hall, Nov. 10, Wollaston School addn., alterations, from S. & A. Allen Constr. Co., Inc., 282 Washington St., Boston, **$264,500**. CD 10/27. Hubbard, Lawless & Blakeley, 177 State St., Boston, engrs.

Mass., West Springfield—HOUSING—Town of West Springfield Housing Auth., 126 Park St., Nov. 10, Birch, Park Veterans Housing Proj. 200-1, Amostown Rd. Tract, from Capitano Constr. Co., 835 Memorial Ave., **$676,250**. CD 10/26.

Minn., Minneapolis—CLASSROOM—University of Minn., 323 Admin. Bldg., Nov. 9, general contract classroom on Main Campus, from C. F. Haglin & Sons, 123 Bryant Ave. N., **$767,714**. CD 10/28.

CONTRACTS AWARDED

Ia., Ames — HALL — Iowa State Bd. Educ., 1007 Des Moines St., Des Moines, general contract Friley Hall Addn., Iowa State College, to Lippert Bros., Boone, **$623,500**, Bids 11/9. Brooks-Borg, 820 Hubbell Bldg., Des Moines, archts.

●Kan., Merriam—SCHOOL—Shawnee Mission High School Dist., Merriam, general contract high school addn., to Collins Constr. Co., 15 W. 10 St., Kansas City, Mo., **$1,507,347**. Bids 11/3. CD 11/11.

Ore., Eugene—HEATING PLANT BOILERS—State Bd. Higher Educ., University of Oregon, Eugene, boilers and auxiliary equip. for University of Oregon steam heating plant, to P. S. Lord, 4507 S. E. Milwaukee St., Portland, **$558,323**. Bids 11/15. CD 9/29.

R. I., Providence — FIRE STATION — City, D. J. Roberts, mayor, City Hall, 2 two story, bsmnt., 60x75 ft., brick, cinder block fire stations, Atwells Ave., and Dante and Admiral Sts. to Joseph P. Flynn, 26 Custom House St., **$254,785**. CD 6/27.

Tex., Dallas—SCHOOL—Dallas Independent School Dist., Akard and Royal Sts., Preston Hollow School, to Vivrett & Vivrett, Southland Life Bldg. Annex, **$585,085**. Bids 11/8. CD 11/15, under LB.

Alta., Red Deer—POWER HOUSE—Dpt. P. Wks., Edmonton, power house tunnel at Provincial Training School, to Burns & Dutton Constr. Co., Ltd., 5440 First St. W., Calgary, Approx. **$110,000**. Bids 9/3. CD 8/26.

COMMERCIAL BUILDINGS

BIDS ASKED

About November 28

N. Y., New York—GENERAL ASSEMBLY—United Nations Headquarters Planning Office, 405 E. 42 St., Zone 17, general assembly bldg. United Nations Associated Architects, 1270 Ave. of the Americas, Zone 20, archts. CD 3/27/47.

November 29

Ill., Chicago—COMMUNITY, etc.—St. Anselm Parish, 6045 S. Michigan Ave., 1 story, brick, steel, concrete community bldg. and gymnasium. Barry & Kay 53 W. Jackson Blvd., archts.

November 30

●Ill., Chicago—APARTMENTS—1350 Corporation, Michigan Shore Apts., 1350 N. Lake Shore Dr., Zone 10, two 21 story, 740 unit apartments, **$7,000,000**. Loebl, Schlossman & Bennett, 333 N. Michigan Dr., Zone 1, archts. CD 5/12.

●Ill., Chicago—APARTMENTS—Owner c/o Draper & Kramer, 16 N. Dearborn St., 21 story, brick, rein.-con. apartment bldgs., 1350 N. Lake Shore Dr., $7,000,000. Loebl, Schossman & Bennett, 333 N. Michigan St., archts.

December

Md., Baltimore—CHURCH, etc.—Grace Methodist Church, Rev. Wm. A. Keese, 309 Woodlawn Rd., 2 story, bsmnt., 475,000 cu. ft., brick, Colonial type church and Sunday school, **$375,000**. A. Hensel Fink, Wesley Bldg., 1701 Arch St., Phila., Pa., archt.

December 15

●Neb., Fort Crook — HOUSING — Offut Air Force Housing Proj., Fort Crook, construct, finance and manage housing units on donated land for air force personnel of Offut Air Base. Approx $2,000,000 CD 11/3.

After December 15

Ill., Chicago—HOSPITAL—Illinois Masonic Hospital, 834 W. Wellington St., Zone 14, 5 story, bsmnt., steel, concrete hospital addn. $300,000. Schmidt & Garden & Erickson, 104 S. Michigan Ave., Zone 3, archts

December 21

Fla., Winter Park—LIBRARY—Rollins College, winter Park, library Approx. $300,000. George H. Spohn & James R. Rogers II, Winter Park, archts. CD 12/3/46.

Bids Asked

Ill., Barrington—CLUB HOUSE—Barrington Hills Country Club, County Line Rd., 3 story, 45x110 ft. concrete, brick, club house addn. $250,000 R. E. Stoetzel, 111 W. Monroe St., Chicago, Zone 3, archt.

●Ill., Chicago — HOUSING — Dpt. of Army, Fifth Army, 1660 E. Hyde Park, construct, manage and finance 200 unit rental housing. $1,800,000

Ill., Chicago—WAREHOUSE, etc.—Noma Electric Co., 526 S. Canal St., Zone 7, remodeling 8 story warehouse and office. $300,000. Friedman Alschuler & Sincere, 223 W. Jackson St., Zone 6, archts.

Kan., Ft. Leavenworth—HOUSING—Dpt. of Army, Fifth Army, 1660 E. Hyde Park, Chicago, Ill., construct, manage and finance 150 unit rental housing.

Ky., Camp Campbell — HOUSING — Dpt. of Army, Second Army Ft. Meade, Md., construct, manage and finance 400 unit rental housing.

●Tex., El Paso—OFFICE—El Paso Natural Gas Co., Bassett Tower, 9 to 14 story office. $2,500,000. CD 6/2.

SOON LETS CONTRACT

Ill., Elgin—GYMNASIUM—St. Edward High School, 335 Locust St., soon lets contract, 1 story steel, concrete, masonry, gymnasium, $250,000.

Vitzthum & Burns, 1 N. LaSalle St., Chicago, Zone 2, archts.

N. Y., New York—MUSEUM—Museum of Modern Art, 11-15 W. 53 St., Zone 19, soon lets contract museum alterations. $300,000. Marion A. Contopoulas, 9 E. 45 St., Zone 17, archt. CD 10/27.

Pa., Pittsburgh—Union Railroad Co., H. A. Sayre, ch. engr., Union Trust Bldg., soon lets contract 5 story, basmt., 45x127 ft., brick on tile backup, steel office addn., Linden Ave. $400,000. Hunting, Larsen & Dunnells, 1150 Century Bldg., archts. CD 9/7/48.

Vt., Winooski—DORMITORY—St. Michael's College, Rev. D. P. Lyons, pres., Winooski Park, soon lets contract 3 story, basmt., brick dormitory, Winooski Park, $300,000. Freeman, French & Freeman, 138 Church St., Burlington, archts. F. N. Severud, 415 Lexington Ave., New York, N. Y. engr. CD 5/13.

LOW BIDDERS

Kan., Topeka—HOSPITAL—Santa Fe Hospital, 6 and Jefferson Sts., Oct. 22, general contract hospital addn., from M. W. Watson, National Bank of Topeka Bldg., **$713,000,** plumbing and heating, from Sheahan & Degan, 1014 Kansas St., **$409,783,** CD 6/9.

Mass., Brockton — HOSPITAL, etc. — The Brockton Hospital Co., A. S. Orr, pres., Center St., Nov. 8, Mass. (11) G, hospital addns., alterations and boiler plant, Center St., from George B. H. Macomber Co., 19 Milk St., Boston. **$700,000.** CD 10/27.

Tex., Brownsville—HOSPITAL—Mercy Hospital, Brownsville, cancelled bids to have been opened Oct. 26, 3 story structural steel 42-bed hospital unit, concrete pier and beam fdn. **$603,000.** Will re-advertise. CD 10/4.

CONTRACTS AWARDED

Calif., Arcadia — DWELLINGS — Arthur E. Wilson, 1700 N. Santa Anita St., **3** frame, stucco dwellings, Owner builds. **$291,000.**

Calif., Los Angeles—DWELLINGS—Associated Home Furnishers, Inc., 1143 S. Beverly Dr., 57 frame, stucco dwellings, to Hirsh-Edmunds Bldg. Co., 1143 S. Beverly Dr., **$475,000.** Hugh Gibbs, 441 E. 1 St., Long Beach, archt.

Calif., Torrance — DWELLINGS — Truman Enterprises, Inc., 4320 Imperial Hy., Inglewood, 48 frame, stucco dwellings, 178 Pl., to New House Building Corp., 4320 Imperial Hy., Inglewood. **$250,000.** Hugh Gibbs, 441 E. 1 St., Long Beach, archt.

Calif., Whittier — DWELLINGS — Rancho Burke, 9700 W. Pico Blvd., Los Angeles, 68 frame, stucco dwellings, to Allied Contractors, Inc., 9700 W. Pico Blvd., Los Angeles. Approx. **$421,800.** Frank Green, 1515 E. Chevy Chase St., Glendale, archt.

Ill., Chicago—APARTMENT—Irving M. Karlin, archt., 27 E. Monroe St., Zone 3, 3story, English basmt., concrete, brick apartments, Hollywood and Christiania Sts., for Hollywood Plaza Apt. Bldg. Corp., c/o archt., masonry work to Ruby Constr. Co., 5915 W. Grand St., Zone 39, approx. **$250,000.** CD 8/11.

●Ill., Chicago—NURSES HOME, etc.—Presbyterian Hospital, 1753 W. Congress St., Zone 12, 14 story, concrete nurses home and school, brick-pile fdn., Harrison near Wood Sts., in West Side Medical Center, to R. C. Wiebold & Co., 2353 Blue Island Ave., Zone 8. **$2,500,000.** Burnham & Hammond, 53 W. Jackson Ave., Zone 4, archts.

In., Mason City—APARTMENTS—West View Co., Waterloo, constructing thirteen apartments, to John G. Miller Constr. Co., 222 W. Mullan St., Waterloo. **$600,000.**

Mo., St. Louis—STORE—S. S. Kresge Co., T. B. Murphy, mgr. Constr. Dpt., Kresge Bldg., 2727 Second Ave., Detroit 32, Mich., interior and exterior alterations and remodeling store, 6 St. and Washington Ave., to Murch-Jarvis Co., 718 Locust St., Zone 1, approx. **$500,000.** J. E. Sexton, c/o owner, archt.

●Mont., Great Falls—HOUSING—East Base Housing Corp., Great Falls, 24 apartment type bldgs., at Great Falls Air Force Base, to Palmer-Witty Constr. Co., Great Falls. **$1,138,-000.** Bids 8/14. CD 8/22, under LB.

N. Y., Brooklyn—SCHOOL—Roman Catholic Church of Saint Mary Queen of Heaven, 1319 E. 57 St., Zone 3, 3 story parochial school, 1302-38 E. 57 St., to Cuzzi Bros. & Singer, 160 E. 56 St., New York, Zone 22. **$354,559.** CD 9/23.

N. Y., Maspeth—OFFICE, etc.—Manhattan Grocery Co., 385 Gerard Ave., New York, Zone 51, office and warehouse, 58 St. and 55 Dr., to Sordoni Constr. Co., 43 Owen St., Wilkes Barre, Pa. Approx. **$350,000.** Lacy, Atherton & Davis, Hotel Sterling, Wilkes Barre, Pa., archts.

N. Y., Richmond Hill—CHURCH—Our Lady of Perpetual Help, 178 St. and Wexford Terrace, church, Dalny Rd., to Patrick Constr. Corp., 92-01 59 Ave., Elmhurst. **$341,432.** Robert J. Reiley, 43 W. 45 St., New York, Zone 19, archt.

Pa., Abington — RESIDENCES — Walter Brucker, 911 Rowland Ave., Cheltenham, residential development, Woodland Rd., etc. separate contracts. **$250,000.**

Pa., Philia.—CHURCH—St. Richard's Roman Catholic Church, 3010 S. 18 St., church, to John P. Donovan, Inc., Lewis Tower Bldg., **$250,000.** Frank J. Ricker, 6115 Hudson Ave., West New York, N. Y., archt.

Pa., Philia.—RESIDENCES—Vance Constr. Corp., 443 W. Cheltenham Ave., Melrose Park, residential development, 2100 block Deverlaux St., to Kerr & Williams, 443 W. Cheltenham Ave., Melrose Park, **$280,000.**

Pa., Philia.—RESIDENCES—Oakland Housing Corp., c/o J. Ethan Fieldstein, archt., 1325 Walnut St., residential development, Oaklyn and Van Kirk St., separate contracts. **$250,000.**

●Tex., Corpus Christi—DWELLINGS—Delta Building Co. & Assoc., 1215 Prairie St., Houston, 100 dwellings. Approx. **$550,000.** 150 dwellings. Approx. **$750,000.** Purchase and Hire. CD 11/14.

Tex., Dallas—DUPLEX HOUSING—O. J. Parrott & Assoc., Lawnville and Scyene Rd., 50 duplex housing units in Parkdale Addn., own forces. Approx. **$350,000.** CD 10/9/47.

Tex., Dallas—DWELLINGS—O. J. Parrott and Frances R. Lee & Assoc., Lawnview and Scyene Rd., 175 dwellings, own forces. **$725,-000.** CD 10/9/47.

Tex., Houston—STORE and APARTMENT—M. P. Reynolds, 804 W. Gray Ave., stores and apartments, own forces. **$275,000.** CD 11/24/27.

Tex., Houston — STORE — Fairworth Co., Inc., c/o Westview Terrace, 8 store units, own forces. Approx. **$300,000.** CD 9/16.

Tex., Lubbock—SHOPPING CENTER FACILITIES—L. Payne & T. Jenkins, Highland Place, Inc., c/o L. Payne Lumber Co., 114 N. College St., shopping center facilities, asph. street paving, storm and sanitary sewers, c.i. waterlines, etc. to B. T. Jenkins & Son, Lubbock. Approx. **$400,000.** CD 11/11.

Tex., Port Neches—HOUSING—M & M Building Materials & Supply Co., Port Neches, housing. Owner builds. Approx. **$275,000.** CD 11/7.

Tex., San Antonio—DWELLINGS—Bremer & Wilhelm, 3031 Culebra St., 83 dwellings, day labor. **$460,000.**

●Tex., San Antonio—DUPLEXES and RESIDENCES—E. J. Burke & Sons, 4220 S. Zarzamora St., 100 duplexes (in 4-unit apartments) Eastward extension of Highland Hills, **$900,000;** 200 residences in Eastward extension of Highland Hills, **$1,200,000.** Purchase and Hire. CD 11/3.

Tex., San Antonio—HOUSING—Roland Bremer, 2410 W. Summit St., 86 unit housing; own forces. **$691,000.** CD 11/14.

Tex., San Anton,o — HOUSING — John F. Cunningham, Inc., 1120 S. Mesquite St., housing, own forces. Approx. **$250,000.** CD 11/17.

Tex., San Antonio—DWELLINGS—Richardson Development Corp., Gunter Bldg., 52 dwellings, near here, own forces. Approx. **$100,000.** C. Rinehard & Ernest Reed, 330 Primrose St., archts.

Tex., San Antonio—RESIDENCES—Frank Robertson, Majestic Bldg., 27 residences, Bryant Park, day labor. Approx. **$250,000.** CD 11/3.

Tex., San Antonio—DWELLINGS—Frank Robertson, Majestic Bldg., 62 addnl. dwellings, day labor. **$425,000.** CD 11/3.

Tex., Seminole—CHURCH—First Baptist Church, Seminole, 2 story, brick, hollow tile, concrete church, concrete slab fdn., to Gilstrap Constr. Co., Lubbock, Approx. **$258,000.** Est. $250,000. CD 11/14.

Tex., Waco—EDUCATIONAL, etc.—Columbia Avenue Baptist Church, Waco, 3 story, bsmnt educational bldg.; 1 story chapel, to C. L. Hendricks & Son, Box 956. **$525,974.** Bids 11/8. CD 11/10.

Ont., Ottawa — COMMUNITY CENTER — Jewish Community Center, Chapel St., 3 story, 70x116 ft., steel, brick, stone Jewish community center, Chapel St., to James More & Sons, Ltd., 239 Argyle Ave., Approx. **$309,000.** Hazelgrove & Lithwick, 53 Queen St., Ottawa, and Abra, Balharrie & Shore, 53 Metcalfe St., Ottawa, archts. CD 9/22/44.

INDUSTRIAL BUILDINGS

BIDS ASKED

November 30

La., New Orleans—SALES and SERVICE—Freret & Wolf, archts., 630 Gravier St., 2 story, 165x206 ft., rein.-con., brick, sales and service bldg., for Stephens Buick Co., 830 Clarondelet St. CD 5/17.

O., Hamilton—WAREHOUSE—Omar, Inc., 1910 Harney St., Omaha, Neb., branch warehouse $125,000. Luria Eng. Co., 500 5 Ave., New York, N. Y., engr. CD 10/6.

BIDS ADDED

Pa., Philia. — MANUFACTURING — Leonard Solomon, archt., 1601 Mayland St., 2 story masonry mfg. bldg. for Solodky's, 44 N. 3 St. Approx. $68,000.

R. I., Pawtucket — WAREHOUSE — M. L. Harriett, East Ave., 3 story, bsmnt., 50x85 ft., cinder block, steel warehouse, Pleasant and Taft Sts. $70,000. Former bids rejected. S. Bizier 11 High St., archt. CD 9/6.

R. I., Providence — FACTORY — G. Pruefer Co., Inc., 185 Union St., (selected list bidders) 2 story, bsmnt., 80x102 ft., concrete, cinder block factory, Union St. $75,000. Dimitri & Dimitri, 17 Exchange St., archts.

SOON LETS CONTRACT

Tex., San Antonio—PLANT—Federal Envelope Co., 535 S. Flores St., soon lets contract envelope plant. $85,000. Atlee B. & Robert M. Ayres, Transit Tower, archts.

Ont., Toronto—WAREHOUSE—Barnett & Rieder, archts., 300 Bessborough Dr., soon lets contract 1 story, 30x400 ft. plus 50x70 ft., brick steel warehouse alterations, addns., incl. loading platform, dock, with 25 electrically overhead doors for E. Eaton Co., Ltd., 190 Young St., Approx. $175,000.

LOW BIDDERS

Colo., Grand Junction—PLANT, etc.—The Daily Sentinel, 634 Main St., Nov. 10, general contract 2 story, 50x125 ft., printing plant and office, incl. remodeling present bldg. from Otto J. Bauman, 1602 Orchard Ave., **$136,563,** Est. $135,000. CD 11/1.

SOON LETS CONTRACT

Conn., Fairfield—STORAGE—Joseph Schneider, 835 Brooklyn Ave., Brooklyn, N. Y., 1 story, 100x155 ft., brick, steel storage bldg. incl. stores, Post Rd., to Frank Rizzitelli & Sons, 329 Lincoln Ave., Bridgeport, Approx. **$175,000.**

Conn., Hartford — PUBLIC GARAGE — Joseph Gonsalves, 599 Capitol Ave., 2 story, 50x55 ft., bsmnt., cinder blocks, steel, public garage, incl. repair facilities and paint shop, Capitol Ave., to Edward Jacko, Newington. Approx. **$68,000.** Morse Guilford, 16 Elm St., East Hartford, archt.

Ill., Cicero—FACTORY—Lenc-Smith Mfg. Co., 19 St. 46 Ave., design and construction 1 story, 80,000 sq. ft., steel, brick, concrete factory, to Klefstad Eng. Co., 3450 N. Kastner St., Chicago, Zone 41, **$400,000.** Awarded 11/2.

Ill., Franklin Park—FACTORY—Era Tool & Eng. Co., 9301 Belmont St., design and construction 1 story, 14,000 sq. ft. brick, steel, concrete factory, to Klefstad Eng. Co., 3450 N. Kostner St., Chicago, Zone 41, **$70,000.** Awarded 11/1.

Minn., Blooming Prairie—PLANT—Farmer's Co-operative Elevator Co., O. Peterson, pres., general contract soybean plant, main bean mill, 3 cement storage bins, 120,000 bu. capacity, to Lysne Constr. Co., Blooming Prairie. **$88,200.** CD 9/23.

Pa., Philia.—INDUSTRIAL—Superior Spring & Axle Works, 1631 Hunting Park Ave., 1 story, 94x110 ft., masonry industrial bldg., to Henry R. Eitzen, Roberts and Railroad Aves., Glenside. Approx. **$68,000.** S. Burczynski, 1321 Arch St., archt.

Pa., Pittsburgh — DRIER HOUSE — Pittsburgh Brewing Co., 3340 Liberty Ave., drier house, to Helwig-Sauers Constr Co., P. O. Box 415. Approx. **$75,000.** Brocker, 201 Coulter Bldg., Greensburg, archt.

Pa., Pittsburgh—FACTORY—Hachmeister, Inc., 2338 Forbes St., 1 and 2 story, brick factory, land Ave., Stowe Twp. near here, to E. H. Boller, Pine Creek Rd., Perrysville, Approx. **$100,000.**

Pa., Sharon — WAREHOUSE — Pittsburgh Gage & Supply Co., 3000 Liberty Ave., Pittsburgh, 1 story, 30x38 ft., brick, concrete block, 1 story 60x160 ft. prefabricated steel warehouse, Hickory St., to Heller Murray Co., 222 W. Rayen Ave., Youngstown, O., Approx. **$75,000.** Bids 10/14. CD 10/18.

●Pa., West Point — SYNTHETICS PLANT — Sharp & Dohme, Inc., 640 N. Broad St., Phila., synthetics plant and auxiliary facilities, to United Engineers & Constructors, Inc., 1401 Arch St., Phila. **$2,000,000.**

Tex., Dallas—WAREHOUSE, etc.—Johnson Bros. Chevrolet Co., 1901 Ross St., auxiliary warehouse and used car plant, own forces. Approx. **$75,000.**

Tex., Dallas—WAREHOUSE—Roach & Atkinson, 3004 Commerce St., warehouse, own forces. Approx. **$75,000.** Christiansen & Christensen, 709 St. Paul St., archt.

Tex., Houston—WAREHOUSE—National Industries Corp., Republic Bank Bldg., Dallas, warehouse, to O'Rourke Constr. Co., 1001 W. Commerce St., Dallas. Approx. **$70,000.**

Tex., Houston—WAREHOUSE—Reilly-Benton Co., Inc., 5521 Clinton Dr. warehouse-service, day labor. Approx. **$75,000.**

Tex., Houston — WAREHOUSE — Republic Steel Corp. of Texas, N. Esperson Bldg., warehouse, to L. G. Jorgenson, 4000 Navigation St., Approx. **$85,000.** CD **12/26/45.**

Tex., Texas City—REFINERY—Pan-American Refining Co., Texas City refinery, to Tellepsen Constr. Co., 1710 Telephone Rd., Houston. Approx. **$250,000.**

Ont., Dresden — FACTORY, etc. — National Hardware Specialties, Ltd., 135 Duncan St., Walkerville, 1 story, 77x181 ft. steel, brick, stone factory and office, own forces. Approx. **$100,000.** J. W. Storey, 169 Queen St., Chatham, archt. CD 8/31.

Ont., Sudbury—PLANT—Canada Dry Ginger Ale Ltd., 14 Nelson St., 1 story, bsmnt., brick, steel, concrete bottling plant to H. Barlow & Sons, 131 Adie St., Approx. **$90,000.** J. B. Sutton, 99 Larch St., archt.

UNCLASSIFIED

BIDS ASKED

November 23

Calif., Los Angeles—LIGHTING SYSTEM—City, electrolier lighting sys. in Vermont Ave., Washington to Exposition Blvds. Approx. $50,-000. Lloyd Aldrich, city engr.

November 29

Kansas—RURAL DISTRIBUTION LINES—Wheatland Electric Co-operative, Scott City, 23.8 mi. rural distr. lines in Scott and Lane Counties. $60,000. Frank Horton & Co., Lamar, Mo., engrs.

November 30

B. C., Prince Rupert—FISHERIES FLOATS—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., renewal fisheries floats north of dry dock. Approx. $72,000. Plans deposit $20. R. Blais, c/o owner, engr. CD 4/5/46.

N. S., Black Point—WHARF REPAIRS, etc.—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf repairs, imprvs. Approx. $48,000. Plans deposit $20. R. Blais, c/o owner, engr.

December 1

Arkansas—RURAL DISTRIBUTION LINES—North Arkansas Electric Co-operative, Salem, 28.95 mi. 34.5 kv. line and 4 substations, Fulton Co. Plans deposit $25. Allen & Haskell, 65 McCall Pl., Memphis, Tenn., engrs. CD 7/28.

Fla., Tampa — SWIMMING POOL, etc. — Tampa Yacht & Country Club, c/o Russell & Axon, engrs., Daytona Beach, swimming pool, appurtenances. Plans deposit $10.

December 6

†**Arkansas**— CEMETERY IMPRVS. — U. S. Eng., 300 Broadway, Little Rock, imprv. cemetery in Bull Shoals Reservoir Area, Inv. CIVENG-5-050-50-43.

†**Calif., Muroc**—POWER LINE, etc.—U. Eng. 751 S. Figueroa St., Los Angeles, electric power line and move substation. $150,000.

†**Montana**—TRANSMISSION LINE—Bureau Reclamation, Dpt. Interior, Bldg. 1-A Denver Federal Center, Denver, Colo., Havre-Shelby 115-kilovolt transmission line, between Havre substation and Shelby substation site, Fort Peck Proj., Spec. 2825. L. N. McClellan, ch. engr.

December 8

†**Idaho**—PLATFORMS—Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Mountain Home, 2 steel platforms at Anderson Ranch Power Plant, Boise Proj., Spec. 2826. L. N. McClellan, ch. engr.

†**Montana**—TRANSFORMER, etc.—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Rudyard, outdoor type power transformer, outdoor lightning arresters, grounded-neutral circuit, outdoor distribution transformer, outdoor circuit recloser, outdoor horn-gap switches, grounding blades, outdoor disconnecting fuses, outdoor disconnecting switches, outdoor fused cutout, outdoor lightning arresters, ungrounded-neutral circuit, outdoor current transformers, potential transformers, metering cabinet, demand meter, circuit breakers, recording voltmeter for Rudyard substation, Fort Peck Proj., Spec. 2832. L. N. McClellan, ch. engr.

December 9

Washington — RURAL DISTRIBUTION LINES — Klickitat County Public Utility Dist. 1, Goldendale, 270 mi. rural distr. lines, Klickitat and Skamania Counties. Plans deposit $10. Bids 11/10 rejected, L.B. **$125,000.** Howard Zenier & Assoc., Vancouver, engrs. CD 10/19.

December 14

●**Ind., Fort Wayne**—COLISEUM—Bd. Comrs. Allen Co., F. C. Wissman, aud., and Bd. Coliseum Trustees, Court House, coliseum. **$3,500,000.** Extended date. CD 10/31.

†**Kentucky** — TRANSMISSION SYSTEM — U. S. Eng., 303 U. S. Court House, Nashville, Zone 1, Tenn., furnishing, del. f.o.b. cars Somerset, Ky., one 15 kv. oilfilled pipe-cable transmission sys., consisting of 6 generator circuits, for Wolf Creek Hydro-electric Power Plant, Cumberland River, Russell Co., CIVENG 40-058-50-15. CD 11/7.

About December 15

Kansas—RURAL DISTRIBUTION LINES—Sumner-Cowley Electric Co-operative Assn., Inc., Robert Anderson, mgr., 122 E. Lincoln St., Wellington, 135 mi. rural distr. poles and ays. imprvs., Sumner and Cowley Counties. $342,000. Frank Horton & Co., Lamus, Mo., engrs. CD 9/30.

December 15

†**California**—CIRCUIT BREAKERS—Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Bethany, Calif., outdoor power circuit breakers, disconnecting switches, grounding blades for Tracy Switchyard, Central Valley Proj., Spec. 2824. L. N. McClellan, ch. engr.

†**Montana** — TRANSFORMER, etc.— Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Shelby, outdoor power transformer, lightning arresters, ungrounded-neutral circuit, grounded neutral circuit, regulating transformer, output capacity, outdoor shunt reactor, distribution transformer, circuit breaker, disconnecting switches grounding blades outdoor-horn-gap switches, disconnecting fuses, current transformers, potential transformers for Shelby Substation, Fort Peck Proj., Spec. 2837. L. N. McClellan, ch. engr.

December 20

†**Oregon-Washington** — RAILROAD RELOCATION—U. S. Eng., 19 E. Poplar St., Walla Walla, Wash., constructing 11.4 mi. sect. Union Pacific Ry. relocation and 10 mi. sect. U. S. Hys. 730 and 395, from point east of Umatilla, Ore., to Wallula, Wash.

December 22

†**Oregon**—RAILROAD RELOCATION—U. S. Eng., Pittock Block, Portland, Zone 5, construct section Southern Pacific R.R. relocationand section Oregon State Hy. 58 relocation near Meridian Dam site, from 3 mi. south and 6½ mi. east of Dexter, Lane Co., CIVENG-35-026-50-153.

About January 13

†**Ohio** — RAILROAD RELOCATION — U. S. Eng., Madison Ave. and 8 St. W., Huntington, W. Va., relocation Baltimore & Ohio R. R., Dillon Reservoir, grading, appurtenant work, between cities of Zanesville and Newark, Licklind and Muskagum Counties. CIVENG-46-032-50-41. CD 2/1/46.

LOW BIDDERS

Mass., Concord—BATH HOUSES, etc.—Comrs. Middlesex Co. Courthouse, East Cambridge, Nov. 4, two bath house addns. and beach imprvs., Walden Pond, from Connolly Bros., Inc., 20 Oak St., Beverly Farms, **$91,283.**

N. C., Concord—RECREATION CENTER—Concord Recreation Comn. and Concord Graded School Bd., Concord, Nov. 9, recreation center, incl. music dept. for high school, from L. S. Bradshaw & Sons, Salisbury, **$153,106.** CD 10/26.

Texas—RURAL DISTRIBUTION LINES—Coleman County Electric Co-operative, Inc., E. E. Evans, pres., Coleman, Oct. 28, approx. 184.5 mi. rural distr. lines, converting approx. 6.7 mi. existing lines, Coleman, Runnels, Concho, Coke and Brown Counties from B-Line Constr. Co., 520 1st Natl. Bank Bldg., Oklahoma City, Okla., **$175,383.** Est. $180,000. CD 10/26.

CONTRACTS AWARDED

Calif., Riverside—TRANSMISSION LINE—City Utilities Bd., 3554 Mulberry St., 15 mi. 33 kv. transmission lines, own forces. Bids 8/11 rejected. CD 8/28.

Conn., Bristol—HOUSING SITE IMPRVS.—City, P. Wks. Dpt., Bristol, housing site imprvs., MR-21, sewers, roads and landscaping, etc. Owner builds. **$80,000.**

Iowa — RURAL DISTRIBUTION LINES — Guthrie Co. Rural Electric Co-operative Assn., Guthrie Center, imprv. 216.3 mi. rural distr. lines, Guthrie Co., to Hoak Constr. Co., 621 63 St., Des Moines, **$318,434.** CD 8/8/48.

Mo., Maryville — DRIVE-IN THEATER — C. E. Cook & Sons, Maryville, drive-in theatre, to Rosecrans Constr. Co., Hopkins, **$75,000.** Truman Schlup, 1401 Fairfax Trafficway, Kansas City, Kan., engr. CD 8/18.

Neb., Omaha—PAVILION, etc.—City, City Hall, 18 and Farnam Sts., pavilion and utilities at Riverview Park, to Foster-Smetana Co., 4360 Nicholas St., **$64,437.** Robbins & Assoc., Kilpatrick Bldg., archts. CD 11/27/46.

N. H., Claremont—SWIMMING POOL—Community Center, Claremont, rein.-con. outdoor swimming pool, to Douglas E. Page, 10 Block Ave., **$96,000.** Dirsa & Lampron, 922 Elm St., Manchester, archts.

†**Oregon** — TRANSMISSION LINE IMPRVS. —Bonneville Power Admin., 729 N. E. Oregon St., Portland, clearing 9.16 mi. right-of-way for Coos River-Coos Bay sect. of Reedsport-Coos Bay 115 kv. transmission line, Coos Co., Inv. 4861, to Murray Bros., Lakeside, **$54,720.** Bids 11/10. CD 10/27.

R. I., Providence—RADIO—Providence Journal Co., 75 Fountain St., auditorium radio facilities alterations, Fountain St., to F. A. Menzies Co., 522 Hospital Trust Bldg. Approx. **$120,000.** Harry E. Davidson & Son, 66 Beacon St., Boston, Mass., archts.

Tex., Beaumont—STREET LIGHTING—City, street lighting expansn. incl. 285 new lights, units. Purchase and Hire. Approx. **$80,000.** R. C. Black, city engr. CD 9/23.

Tex., Floresville—RURAL DISTRIBUTION LINES—Floresville Electric Light & Power Co., Floresville, rural distr. lines extens., Purchase and Hire. **$133,000.** CD 9/8.

Wyoming—RURAL DISTRIBUTION LINES —Niobrara Electric Assoc., Lusk, 270 mi. rural distr. lines, Niobrara Co., to Continental Co., 54 Beverly Place, Dayton 9, O., **$86,585.** Flora Eng. Co., 171 E. Colfax St., Denver, Colo. engrs. CD 10/4.

B. C., Harrison Mills—DYKE—Fraser Valley Dyking Bd., 123 W. Pender St., Vancouver, about 5 mi. dyke, to Brabant Brothers Ltd., St. Boniface, Man., **$84,766.**

Ont., Guelph — SWIMMING POOL, etc. — Municipality, City Hall, swimming pool in Lyon Park, incl. soccer field, softball diamond, outdoor skating rink and playground, etc., own forces. **$50,000.** H. S. Nicklin, City Hall, city engr. CD 12/11/44.

Ont., St. Tomas—PARK IMPRVS.—Municipality, City Hall, mile and half race track, at Pinafore Park, baseball and football grounds new entrance and new 800 ft. roadway, own forces. **$50,000.** W. C. Miller, city engr. CD 8/18.

P. E. I., Souris — WHARF, etc. — Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., repairing wharf and shed, to J. W. McMulkin, Upper Gagetown, N. B., **$54,823.** H. E. Miller, 38 Great George St., Charlottetown, P. E. I., engr. CD 3/18.

Proposal Advertisements see pp. 115 & 116

OFFICIAL PROPOSALS

Bids: November 28, 1949 (429)

Water Main Construction

WASHINGTON SUBURBAN SANITARY COMMISSION
CONTRACT NO. 695-W

Sealed proposals for constructing approximately 28,800 feet of 20-inch to 42-inch supply line from Columbia Pike near Paint Branch to Wheaton, Montgomery County, Maryland, will be received at the office of the Washington Suburban Sanitary Commission, Hamilton Street, Hyattsville, Maryland, until Monday, November 28, 1949 at 2:00 P.M., Eastern Standard Time, at which place and time they will be publicly opened and read. Alternate bids are asked on cast iron, steel, reinforced concrete prestressed and reinforced concrete cylinder pipe.

Plans and specifications may be obtained from the office of the Chief Engineer of the Commission, Hyattsville, Maryland, upon deposit of $10.00, which deposit will be returned to bidders or to those returning plans and specifications in good condition.

Dwight B. Galt
Warren Browning
Leland G. Worthington
Commissioners

Bids: January 9, 1949 (430)

Concrete Dam and Power Plant

Puerto Rico Aqueduct and Sewer Authority
Santurce, Puerto Rico

Sealed bids will be received by the Puerto Rico Aqueduct and Sewer Authority until 3 o'clock P.M., January 9, 1950, at the office of the Authority in Santurce, Puerto Rico.

Copies of the plans and specifications may be examined and obtained at the office of the Puerto Rico Aqueduct and Sewer Authority, Santurce, Puerto Rico or at the offices of Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York City upon deposit of Twenty-Five ($25.00) Dollars, which sum will be refunded upon return of the plans and specifications in good condition within twenty (20) days after the date on which bids are received.

The work to be performed is divided into three (3) sections. The principal items of work are:

SECTION F The construction of a gravity-type concrete dam about 210 meters long with a maximum height to spillway crest of about 18 meters together with concrete power plant structure, pumping station substructure, tail race, and installing Tainter gates.

SECTION G Furnishing C.I.F. San Juan, Puerto Rico 8 Tainter gates, each 39 feet wide by 30 feet high, with hoisting mechanisms and electrical control equipment.

SECTION H Furnishing C.I.F. San Juan, Puerto Rico 2 hydraulic turbines and 2—1,250 KVA electric generators.

Each proposal must be accompanied by a certified check or bid bond equal to 5% of the proposal. The certified check will be retained to pay for any damage or loss to the Authority, or the liability bond will accrue in case the successful bidder shall neglect or refuse to enter into a contract in accordance with his proposal.

The Authority reserves the right to consider bids for fifteen (15) days after their receipt before awarding any contract and the right is reserved to waive any informalities, to accept any bid or to reject any or all of them.

PUERTO RICO AQUEDUCT AND
SEWER AUTHORITY
By SERGIA CUEVAS,
EXECUTIVE DIRECTOR

Buck, Seifert and Jost
Consulting Engineers

(Continued on page 116)

OFFICIAL PROPOSALS

U. S. Government
(Continued from page 115)

U. S. ARMY, CORPS OF ENGINEERS, NEW ENGLAND DIVISION, Army Base, Boston 10, Mass. Inv. No. Eng-19-016-50-5—Sealed bids will be received at this office until 2:00 P. M., January 4, 1950, and then publicly opened for Construction of a Veterans Administration Hospital, 500 bed General Medical and 400 bed Tuberculosis, West Haven, Connecticut, in accordance with specifications and plans, copies of which are available at this office. Deposit required of $125.00 per set for blueprints, $40.00 for half-size reproductions, and $15.00 for specifications, in form of certified check or postal money order payable to "Treasurer of the United States". (435)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2835) will be received by Bureau of Reclamation, Denver, Colorado, December 13, 1949, and then publicly opened for furnishing 280,000 barrels of portland cement in bulk; 22,600 tons of pozzolan in bulk; or 75,000 tons of portland-pozzolan cement in bulk for canyon Ferry Dam and Power Plant, Canyon Ferry Unit, Missouri River Basin Project, Montana. Delivery is desired during the construction period until 1953. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.
MICHAEL W. STRAUS, Commissioner
(439)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2837) will be received by Bureau of Reclamation, Denver, Colorado, December 15, 1949, and then publicly opened for furnishing 115- and 34.5-kilovolt transformers, circuit breakers, air switches, and instrument transformers for Shelby sub-station, Fort Peck Project, Montana. Delivery is desired within 300 days. For particulars, address Bureau of Reclamation, Building 1-A, Denver Federal Center, Denver, Colorado.
MICHAEL W. STRAUS, Commissioner
(440)

Department of Commerce, Bureau of Public Roads, November 9, 1949. SEALED BIDS will be received at the office of the Bureau of Public Roads, First National Bank Building, Florence, Alabama, until 10:00 a.m., C.S.T., December 9, 1949, for the construction of Project 3L4, Natchez Trace Parkway, Attala County, Mississippi; steel I-beam bridge, multiple-span concrete box culvert and approaches. Length—0.213 mile. The approximate quantities of the more important items are as follows: 66,300 cu. yd. Excavation; 1,925 cu. yd. Cement Concrete; 306,000 lb. Reinforcing Steel; 45,000 lb. Structural Steel and 10,500 lin. ft. Treated Timber Piling. Minimum wage rates have been fixed as required by law. For plans and specifications, a deposit of $10.00 cash or certified check made payable to the Treasurer of the United States will be required to insure their return within 15 days after the opening of bids. Plans, specifications and proposal forms may be obtained from the Bureau of Public Roads offices, First National Bank Building, Florence, Alabama, or 1440 Columbia Pike, Arlington, Virginia. H. J. Spelman, Division Engineer.
(437)

NOTICE IS HEREBY GIVEN that sealed bids will be received at Casper, Wyoming, until 10 a.m., Mountain Standard Time, December 6, 1949, and then publicly opened for furnishing and delivery the miscellaneous structural steel for the New Casper Substation, Kendrick Project, Wyoming. Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: A. A. Batson, Regional Director, New Customhouse, Denver, Colorado, and I. J. Matthews, District Manager, Casper, Wyoming. No charge to prospective bidders for copies of the specifications and drawings; to others $0.50 per copy not returnable.
(438)

U. S. Government

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2834) will be received by Bureau of Reclamation, Friant, California, December 13, 1949, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, concrete lining, and structures, station 6076+15 to station 6995+10, Friant-Kern Canal, Central Valley Project, California. The work is situated in the vicinity of Delano, California. Principal items are approximately: 3,151,000 cu. yds. excavation; 86,300 cu. yds. concrete; trimming 770,000 sq. yds. earth foundations; and other work. The work is divided into 2 schedules. Time allowed for completion will be 700 days. For particulars, address Bureau of Reclamation, Friant, California; or Building 1-A, Denver Federal Center, Denver, Colorado.
MICHAEL W. STRAUS, Commissioner
(441)

UNITED STATES DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. 2838) will be received by Bureau of Reclamation, Coulee Dam, Washington, December 14, 1949, and then publicly opened for furnishing labor and materials and performing all work for the construction of earthwork, asphaltic membrane lining, pipe lines, and structures, area E-1, East Low Canal laterals, Columbia Basin Project, Washington. The work is situated between Stratford and Moses Lake, Washington. Principal items are approximately: furnishing and laying approximately 9.5 miles of precast-concrete pipe lines, with pipe diameters varying from 12 to 54 inches; 330,000 cu. yds. of excavation for open laterals; furnishing and applying 900 tons of asphalt for membrane lining; 800 cu. yds. of concrete in structures; furnishing and installing gates, valves, and miscellaneous metalwork; and other work. Schedule No. 1 covers the work for pipe-line laterals and Schedule No. 2 covers the work for open laterals. Time allowed for completion will be 530 days. For particulars, address Bureau of Reclamation, Coulee Dam, Washington; or Building 1-A, Denver Federal Center, Denver, Colorado.
MICHAEL W. STRAUS, Commissioner
(442)

BIDS FOR ALTERING DREDGES—Memphis District, Corps of Engineers, P. O. Box 97, Memphis 1, Tenn. Sealed bids will be received here until 2:00 p.m., C.S.T., 15 December 1949, and then publicly opened, for altering and repairing U. S. Dredges Potter and Ockerson. Information on request.
(443)

OFFICIAL PROPOSALS

Bids: December 15, 1949 (436)

Water Transmission Main

SEALED PROPOSALS

Sealed proposals for furnishing all labor and materials for the construction of a water transmission main, a distance of approximately 208,000 lineal feet from the water purification plant at Chester-Octoraro Lake, to the Chester-Harrison Hill Reservoir in Lancaster, Chester and Delaware Counties, Pennsylvania; will be received by the Executive Manager of the Chester Municipal Authority, at the Authority Office, 5th & Welsh Street, Chester, Pennsylvania, up to 2:00 o'clock P.M., Eastern Standard Time, Thursday, December 15, 1949, at which time and place the proposals will be publicly opened and read aloud.

It is the intention to take bids for furnishing and installing the transmission main under two alternate plans of combinations of pipe sizes as outlined in the contracts listed below.

Proposals may be submitted for furnishing and installing the entire transmission main under Contract No. 15. Bids for furnishing and installing the transmission main in four sectional contracts will be taken as

OFFICIAL PROPOSALS

an alternate to the bid for the furnishing and installing the entire transmission main. These alternate bids are represented by Contract Nos. 16, 17, 18 and 19.

Sub-alternate bids under Contract Nos. 15, 16, 17, 18 and 19 for furnishing pipe only, and for installation of pipe only, may also be submitted.

ALTERNATE PLAN NO. 1—
(COMBINATION 42", 39", 36", 30" and 24" DIAMETER PIPE)

Contract No. 15—Furnishing and installing approximately 208,000 lineal feet of 42", 39", 36", 30" and 24" diameter pipe, fittings and appurtenances.
Contract No. 16—Furnishing and installing approximately 26,000 lineal feet of 42" diameter pipe, fittings and appurtenances.
Contract No. 17—Furnishing and installing approximately 65,000 lineal feet of 39" diameter pipe, fittings and appurtenances.
Contract No. 18—Furnishing and installing approximately 65,000 lineal feet of 39" diameter pipe, fittings and appurtenances.
Contract No. 19—Furnishing and installing approximately 52,000 lineal feet of 36", 30" and 24" diameter pipe, fittings and appurtenances.

ALTERNATE PLAN NO. 2—
(COMBINATION 42", 48", 42", 36", 30" and 24" DIAMETER PIPE)

Contract No. 15—Furnishing and installing approximately 208,000 lineal feet of 42", 48", 42", 36", 30" and 24" diameter pipe, fittings and appurtenances.
Contract No. 15—Furnishing and installing approximately 26,000 lineal feet of 42" diameter pipe, fittings and appurtenances.
Contract No. 17—Furnishing and installing approximately 65,000 lineal feet of 48" diameter pipe, fittings and appurtenances.
Contract No. 18—Furnishing and installing approximately 65,000 lineal feet of 48" diameter pipe fittings and appurtenances.
Contract No. 19—Furnishing and installing approximately 52,000 lineal feet of 42", 36", 30" and 24" diameter pipe, fittings and appurtenances.

Bids for each contract under both alternate plans may be submitted for the following kinds of pipe:

(a) Reinforced concrete pressure pipe
(b) Coated and lined steel pipe
(c) Cement lined cast iron pipe.

The work will be awarded as a whole to one bidder for the entire transmission main, or to more than one bidder under more than one contract, all as deemed to be in the best interests of the Chester Municipal Authority.

The Chester Municipal Authority reserves the right to select the Alternate Plan under which the work will be awarded, and the kind of pipe to be used under the accepted Alternate Plan.

Information for Bidders, Form of Bid, Specifications and Form of Contract may be examined at the office of the Chester Municipal Authority or at the office of Albright & Friel, Inc., Consulting Engineers, 121 South Broad Street, Philadelphia 7, Pennsylvania, on or after November 25, 1949, and copies thereof may be obtained at either office upon a deposit of $40.00 for each set of documents applying to each contract. If the documents are returned in good condition within five days after the opening of bids, the full amount of the deposit will be returned to each actual bidder for one set of plans and other deposits will be refunded with a deduction of $20.00 to defray the actual cost of reproduction. If the documents are not returned within the time stated, the entire amount of deposit will be forfeited.

A certified check or bid bond drawn to the order of the Chester Municipal Authority equal to five per cent (5%) of the amount of bid must be submitted with the proposal for each contract.

Each proposal must be sealed and marked with the applicable contract numbers, and Alternate Plan numbers, and addressed to the Chester Municipal Authority, c/o Clarence L. Conner, Executive Manager.

The Chester Municipal Authority reserves the right to reject any and/or all bids.

CLARENCE L. CONNER
Executive Manager

November 17, 1949

SEARCHLIGHT SECTION

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$1.20 cents a line, minimum 4 lines. To figure advance payment count 5 average words as a line.
INDIVIDUAL EMPLOYMENT WANTED undisplayed advertising rate is one-half of above rate, payable in advance.
PROPOSALS, $1.00 a line an insertion.

INFORMATION.
BOX NUMBERS care publication New York, Chicago or San Francisco offices count as 1 line additional in undisplayed ads.

DISCOUNT of 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

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The advertising rate is $11.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches —to a page. E.N.R.

NEW ADVERTISEMENTS received by November 28th appear in December 8th issue subject to limitation of space available.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (18)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

ESTIMATOR—QUALIFIED to estimate plumbing, heating and power plant jobs running into several million dollars. Prefer mechanical engineering graduate with field experience. Permanent position for the right man with salary and bonus commensurate with qualifications and results. Submit experience record and educational background for review and if interesting to us, personal interview at our expense will be arranged. Reply immediately to Virginia Engineering Co., Inc., Newport News, Virginia, Attention: A. M. Miller.

MECHANICAL SUPERINTENDENT — Qualified to supervise installation of plumbing, heating and power plant jobs running over one million dollars, also mechanical equipment and piping installations in Sewage disposal and water treatment plants. Mechanical engineering graduate with some office experience in estimating preferable, but not essential. Permanent position for properly qualified man with salary and bonus in line with qualifications and results, submit experience record and educational background for review and if interesting to us, personal interview at our expense will be arranged. Reply immediately to Virginia Engineering Co., Inc., Newport News, Virginia, Attention: A. N. Miller.

WRITER WHO is construction engineer wanted for two years work in South America. Should have technical editorial experience similar to ENR and real knowledge of current construction methods and equipment. Write fully stating experience, family status, date available and salary required. Our staff knows of this ad. P-1398, Engineering News-Record.

WANTED: AN Engineer with several years experience, particularly in design of water and sewage treatment plants, for location in Dallas, Texas. Include qualifications, picture, salary requirement, and date available. All replies confidential. P-1405, Engineering News-Record.

EXPERIENCED DESIGNERS, Detailers Steel and concrete bridges or concrete buildings in New York City. Send resume P-1359, Engineering News-Record.

BUILDING INSPECTOR. Prefer graduate with several years experience in building construction for City in Virginia. If interested, advise age, education, experience and salary desired. Address P-1463, Engineering News-Record.

SALES ENGINEER—Young civil engineer with some experience in reinforced concrete design and construction for interesting worldwide new methods building. P-1424, Engineering News-Record.

WANTED: REGISTERED Civil Engineer, Pennsylvania. Concrete or Construction experience, under forty, for position with future. Salary open. P-1470, Engineering News-Record.

EMPLOYMENT SERVICES

SALARIED PERSONNEL $3,000-$25,000. This confidential service, established 1927, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

POSITIONS WANTED

MECHANICAL ENGINEER: 8 years chemical plant design and process engineering, 10 years diversified, maintenance, machine design and supervisory experience. PW-1311, Engineering News-Record.

STRUCTURAL DRAFTSMEN:
Needed Several First Class experienced detailers and checkers. Only those with previous structural fabricating shop experience need apply. Give complete information to Personnel Dept.
Consolidated Western Steel Corp.
Orange, Texas

BRIDGE DESIGNERS
DESIGNER DRAFTSMEN
RESIDENT HIGHWAY ENGINEERS
Experienced men wanted. State qualifications, age, salary and date available in first letter. Construction period, 24 months. Location, Eastern or Western Pennsylvania.
P-1078, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

SALARIED POSITIONS $3,500—$35,000
If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (39 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.
R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N.Y.

POSITIONS WANTED

CONSTRUCTION PROBLEMS — difficulties, unusual conditions, analyzed, solved, dams, tunnels, concrete structures, methods, estimates, quick action. PW-1334, Engineering News-Record.

CIVIL ENGINEER, 12 years experience administrative and design. Specialized in general construction and airport design and field work. Desires contacts for airport design work. Specialty work considered on quotation basis. Work history furnished upon request. PW-1340, Engineering News-Record.

SALES EXECUTIVE: Reliable Phila. Business man 50. Now employed regional manager national company. Broad sales, management, and contact experience. Bondable, highest references. Excellent business and political connections Penna., New York, and New Jersey. Interested in permanent profitable connection only with well established company. PW-1338, Engineering News-Record.

CIVIL ENGINEER — Executive. Registered P.E., N.Y. Thirty-five years broad experence, about twenty of which in responsible charge field and office on highways, municipal and general construction in Latin American and Far East. Fluent Spanish. Excellent credentials. Available for foreign assignment. Write or wire Thuman, P. O. Box 126, Merritt Island, Fla.

STRUCTURAL ENGINEER, graduate, registered, 25 years design and construction subways, buildings, docks, foundations, statically indeterminate structures, etc., desires permanent responsible position. Will go anywhere. PW-1375, Engineering News-Record.

FIELD SUPERINTENDENT: Twenty-five years experience, excavating, earth filled dams, levees, coal stripping operations. Familiar with all types heavy equipment, maintenance and operations. PW-1412, Engineering News-Record.

RECENT C.E. Graduate B.S. Lehigh, M.S.C.E. (Harvard) Soil Mechanics, desires position in structural design or foundation engineering North East preferred. Available on two weeks notice. PW-1407, Engineering News-Record.

EQUIPMENT SUPERINTENDENT: Experienced on large jobs both foreign and domestic. 2 years M.E. best of references. Available now. PW-1452, Engineering News-Record.

Chief Civil Engineer
WANTED
An excellent opportunity in an established west coast engineering firm for an exceptionally well qualified Graduate Civil Engineer, capable of taking charge of a Civil Department. Must possess comprehensive design experience and thorough knowledge of grading, drainage, roads, railroads, and utility layouts for municipalities.
In addition, applicant must have ability to discuss and develop prospective work with municipal, county and state authorities.
Submit photo with experience record covering above requirements in detail. Replies confidential.
P-1251, Engineering News-Record
621 S. Hope Street, Los Angeles, Calif.

POSITION AVAILABLE
Civil Engineering graduate with minimum 12 years' experience to supervise project engineers on building work, waste disposal and structural design. Scheduling experience also desirable. Location in East with established chemical company. Furnish detailed resume of experience and education, also salary requirements, in reply.
P-1420, Engineering News-Record
330 West 42nd St., New York 18, N. Y.

POSITIONS WANTED

ENGINEERING EXECUTIVE 35 years experience Architectural and Contractural field from planning to completion on industrial, bank, hotel, hospital, office, church and housing projects. Available Jan. 1st. PW-1403, Engineering News-Record.

ATTENTION CONTRACTORS. Project manager or General Superintendent Graduate Engineer, registered, desires connection. Closing out large project east coast, available Nov. 20. Bridges, dams, tunnels, public and industrial bldg., oil refineries, heavy foundations, Cofferdams, labor relation expert, free to travel, States—So. America. Resume of experience as well as references. Young energetic, best of health, salary open. PW-1396, Engineering News-Record.

GENERAL OR Assistant Superintendent, Age 48, 28 years experience on concrete bridges, highways, docks, cassons, industrial foundations, concrete dams, southern location preferred but will go any place. 3 years on foreign projects. Available Nov. 15th. PW-1455, Engineering News-Record.

WANTED: CONSTRUCTION superintendent on labor foreman with 30 years experience on all types of roads, black top, concrete, etc.; pipe lines sewer and water, bridges—wants work—available now. PW-1426, Engineering News-Record.

PROFESSIONAL ENGINEER—34, college graduate, registered N.Y. Thoroughly experienced design and detail steel and concrete structures. Nine years industrial plant structures, 4½ years general field and office engineering. Background in administration, specifications, estimates, standards, etc. Presently employed by major industrial concern. Available on short notice. PW-1443, Engineering News-Record.

ADMINISTRATIVE SECRETARY 12 years experience can handle administrative, financial and clerical detail including specification typing. Location Boston area. PW-1479, Engineering News-Record.

ACCT-OFFICE Mgr., 40, wants responsible job with reliable company. Experienced all phases construction paper work including timekeeping, payroll, purchasing, records, costs, material and equipment records, field office, general office books. PW-1489, Engineering News-Record.

(Continued on page 118)

POSITIONS WANTED
(Continued from page 117)

ESTIMATOR OR Specification Writer. Graduate, 30 years wide experience building and general construction, including estimating, specification writing, purchasing. Now located on West Coast. Salary $125 per week. PW-1080, Engineering News-Record.

DESIGN ENGINEER, B.S. & M.S. in C.E. New York state license in Professional Engineering and land surveying. Assoc. Mem. ASCE. 24 years experience in major design of bridges, piers, water supply, drainage, sewage disposal, industrial plants, including buildings and utilities. Resourceful, experienced in complex design methods in both consultant and contractor organizations, and accustomed to independent action. Seeking responsible design connection. PW-1450, Engineering News-Record.

STRUCT. ENGINEER 23 years experience design, details, supervision, estimating, field, checking, rigid frame analysis, top qualifications. PW-1364, Engineering News-Record.

PART TIME WORK WANTED

REGULARLY EMPLOYED Professional Engineer seeks occasional structural design or steel detailing work for evenings, weekends. NYC area. PTWW-1404, Engineering News-Record.

PATENT ATTORNEY

Patent Practice
before U. S. Patent Office. Validity and infringement investigations and opinions. Booklet and form "Evidence of Conception" forwarded upon request. Lancaster Allwine & Rommell, Registered Patent Attorneys, Suite 454, 815-15th Street, N.W., Washington 5, D. C.

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Compressors Wanted
STATIONARY - PORTABLE
LARGE OR SMALL
L. W. BAUER
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Willing To Sublet
The hauling of 100,000 cubic yards of rock fill (on and off highway). The haul in Mass. Please reply to:
P. O. Box 116, Malden, Mass.

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Thirty-ninth Year
OUR COURSES HAVE HELPED THOUSANDS
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Lorain 75A, 1¼-yd shovel or crane, gas or GM diesel.
P&H Model 255A crawler shovel.
Lorain L-41, ¾-yd crawler shovel & crane.
Lorain 40 truck crane, Waukesha engine, mounted on Mack chassis.
Lorain TL-20 self-propelled, 45' crane boom.

SHOVEL ATTACHMENT

Lorain 30A chain crowd, LBS#5142, 16' boom 13'4" stick ½-yd dipper.
Lorain 40 Hi-Lift, 25' boom 19'8" stick LBS #5877, new ¾-yd dipper LBS#7750.
P&H 203A, LBS#2527, 19'6" boom 13' stick ⅝-yd dipper.
Bucyrus-Erie 30B tunnel front 9' stick 1½-yd dipper LBS#3392.

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Backhoe attachment for Lorain or Northwest 1¼-yd machine

BACKHOE BUCKETS

¾-yd Lorain, 40, LBS#6105, 44" cutting width, teeth, sheave.
27" outside width drop bottom type LBS #1033, good condition.
26" outside width solid bottom type LBS #4377, good condition.

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Bucyrus-Erie 1¼-yd gas air, LBS#3782, fair.
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Lorain 75B, 1¼-yd extended lip, 1¼-yd LBS#2260.
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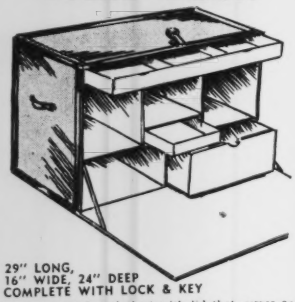

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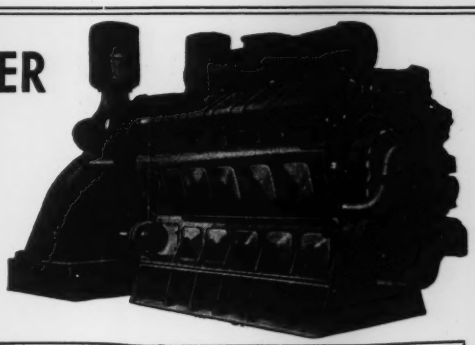

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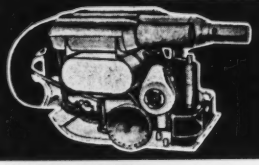

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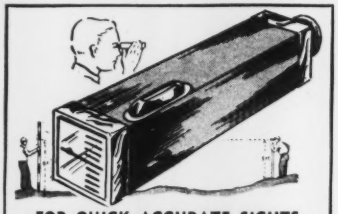

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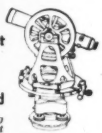

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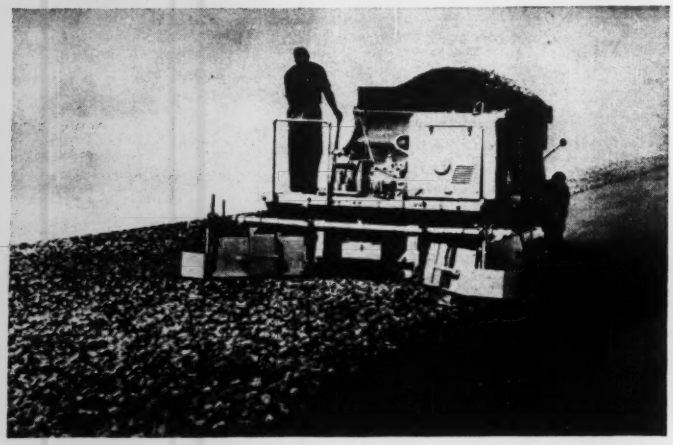

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Ratchet-type unit securely holds loads of all types on flat-bed trucks and trailers. This midget-size ratchet weighs 13 lb. and provides an 8-in. take-up allowing the load to be retightened en route without releasing tension or readjusting the chain. The unit can also be used in replacing turnbuckles in truing steelwork on building construction, for pulling up wire cable, and for lifting heavy drums. Safe working load, with a ⅝-in. chain, is 5,000 lb. — AMERICAN FORGE & MFG. CO., 818 SHORE AVE., PITTSBURGH 12, PA.

Non-Clog Sewage Pump

Bladeless impellers are the secret of non-clog performance of new line of sewage and trash pumps. The impellers contain a single channel—pumping effect is obtained by warping and twisting this channel to produce the equivalent of a one-flow section. The line includes pumps in 2 through 5-in. sizes for low, moderate, and high-pressure service; in horizontal, vertical wet pit, vertical dry pit, and vertical close-coupled construction. All are interchangeable with F-M conventional trash pumps, with no alteration to station piping, drive shafting, or setting.—FAIRBANKS, MORSE & CO., 600 S. MICHIGAN AVE., CHICAGO 5, ILL.

EDITOR'S NOTE—At a demonstration, the 4-in. pump successfully passed a pair of trousers, large tarpaulins, and a knee-length frock coat—causing ENR's field editor to edge nervously toward the door—he being allergic to being a guinea pig for this sort of thing.

Self-Contained 200-Amp Welder

The new Wilson arc welder has a rated maximum capacity of 200 amps, and is completely self-contained. Features include welding range divided into two ranges of current adjustment with stepless control throughout each range; settings are made quickly and accurately by turning the crank handle on the top of the machine; full view scale makes current

(Continued on page 132)

SLASH CONSTRUCTION COSTS with MARIONS

THE MARION LINE

Shovels • Draglines • Clamshells • Cranes • Walking Draglines • Pull Shovels

TYPE	CAPACITY
33-M	¾ cu. yd.
362	1½ cu. yds.
372	1¾ cu. yds.
*93-M	2½-3 cu yds.
492	.3 cu. yds.
*111-M	3½-4 cu. yds.
4161	5 cu. yds.
151-M	6½ cu. yds.
5323	18 cu. yds.
5561	45 cu. yds.
**7200 Walker	5-7 cu. yds.
**7400 Walker	8-12 cu. yds.
**7800 Walker	15-30 cu. yds.

*Diesel Clutch type and Ward-Leonard electric. **Size of bucket depends on length of boom.

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For this powerful pile hammer maintains peak efficiency on job after tough job, year after year. That's a job tested fact. Check for yourself its simple design, easy operation, fast, positive action on less steam. It fits the same leads, uses the same accessories, as the Warrington-Vulcan Single-Acting Pile Hammers.

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Sizes 18C-30C-50C-80C meet all needs.

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Chicago 12 ---Illinois

settings easy to read; and windings fully insulated with heat-resistant spun-glass fiber. Standard equipment includes a primary on-and-off switch, and 10 feet of 3-conductor rubber-covered primary cable with lugs attached.—Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y.

All-Weather Starting Fluid

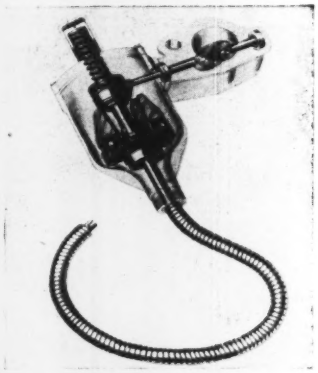
Ten-second starting of heavy-duty gasoline or diesel engines in 30-below temperatures is claimed for the All-Weather starting fluid. Sta-Vis is a chemical product of high volatility containing a special lubricating ingredient which protects the piston and cylinder walls during cold-weather starting. In addition, Sta-Vis is said to reduce winter maintenance costs through reduction of cylinder wall wear caused by imperfect lubrication at low temperatures and wear and deterioration of batteries caused by heavy power drain of prolonged starting.—Sta-Vis Oil Co., 500 Minnesota Bldg., St. Paul, Minn.

Wrecking Ball

Frost or wrecker balls, made of a tough, close-grained, special semi-steel, are available in a range of weights from 2,000 to 4,000 lb. These balls have a well at the top within which is a securely fastened ring for fastening the cable from the crane. Recessing the ring in this manner, protects it and lessens the hazard of damage to the cable.—Eagle Iron Works, 161A Holcomb Ave., Des Moines, Iowa.

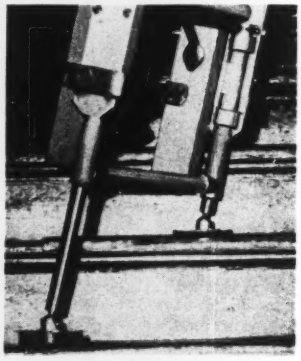
Aluminum Insulation

Infra Accordion Insulation, the multiple sheet aluminum insulation with a fiber separating partition, has been strengthened. The two aluminum sheets now come to the edges of the flanges of the insulation, so that when the insulation is stapled into place, the staples permanently pierce the two layers of aluminum as well as the one of fiber, supplementing the adhesive. Consequently there never can be any separation. This is particularly important, because no glue manufacturer has been found willing to guarantee the adhesive quality of his glues for more than one year, let alone fifty years, which is the specification demanded by this manufacturer.—Infra Insulation, Inc., 10 Murray Street, New York, N. Y.



Carburetor-Mounted Governor

Centrifugal-type governor features a flexible drive shaft permitting installation of the governing unit at the carburetor, regardless of position of driving source. It receives its power input through any of four direct mechanical connections to the engine rpm. The governor can also be mounted as an integral unit of the carburetor.—The Pierce Governor Co., Anderson, Ind.



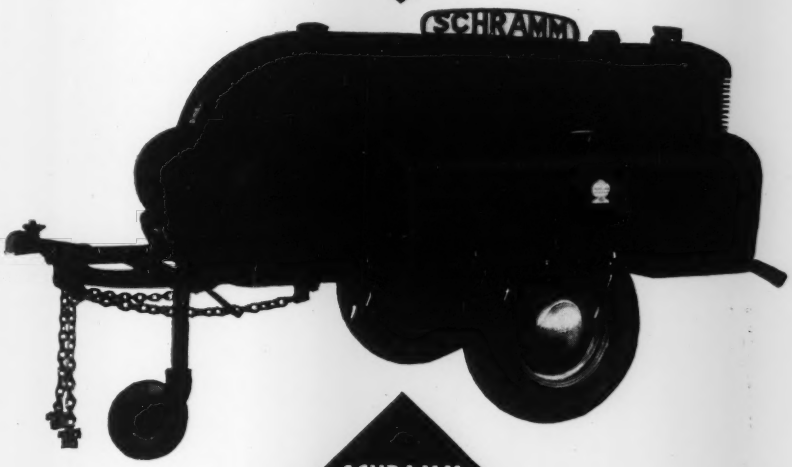
Automatic Ladder Equalizer

Hydraulic attachment automatically maintains ladder in a correct, upright position regardless of the elevation of the individual legs. Interconnected hydraulic units displace oil from one leg into the other as ladder is erected to correct for differences in levels. Moving a foot-operated valve lever locks the legs in the desired position. Can be attached to all types of ladders.

(*Continued on page 134*)

SCHRAMM'S NEW *Unistage* COMPRESSOR

RESULT OF 50 YEARS ENGINE *and* COMPRESSOR MANUFACTURING



SCHRAMM MODEL 105 *Unistage*

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- Easier, cleaner air because it is watercooled.
- Lower fuel consumption with *Pneumastat* saving up to 50%.
- Eliminates intercooling with its manifolds, gaskets, etc.
- Entire unit built by SCHRAMM, therefore, one responsibility.
- Design includes mechanical overhead valves.
- Eliminates two staging with its difficulties in servicing.
- Engine and compressor parts largely interchangeable.
- Designed for continuous 24 hour service.

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SCHRAMM INC. THE COMPRESSOR PEOPLE • WEST CHESTER • PA.

91-foot Composite Deck bridge built over Tres Pinos creek on Panoche road, 20 miles south of Hollister, California.

Composite Deck Bridges

Low cost, long lasting bridges are made possible by the Timber Structures Composite Deck bridge which combines the economy of wood construction with the serviceability of concrete.

The Composite Deck bridge is a modern improvement on construction which has been proved through years of service. Road surface is concrete, poured over preservative treated laminated panels and permanently keyed to the deck. Construction costs are cut in three ways.

Construction time reduced.

Requires minimum of heavy equipment for construction.

No false work, scaffolding or concrete forms.

Minimum Maintenance... Long Life

Structurally, the Composite Deck bridge is as adequate and permanent as other types. There are no joints or parts to deteriorate or become loosened. Preservative treatment gives permanent protection against termites and rot. Painting is not necessary for maintenance.

A folder, "Composite Deck Bridge for Endurance and Economy", gives detailed information about this modern bridge. Get a copy from the Timber Structures office nearest you, or write us for it.

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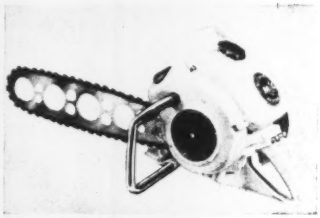
TIMBER STRUCTURES, INC., OF CALIFORNIA — Oakland and Sacramento

Local Representatives Coast to Coast

Telescoping steel tubing automatically adjusts to the proper width of rungs. The Hydra-lizer is constructed of steel, weighs 6 lb., and is safe for working loads of over 500 lb.—Anderson Products Co., P. O. Box 691, Tulare, Calif.

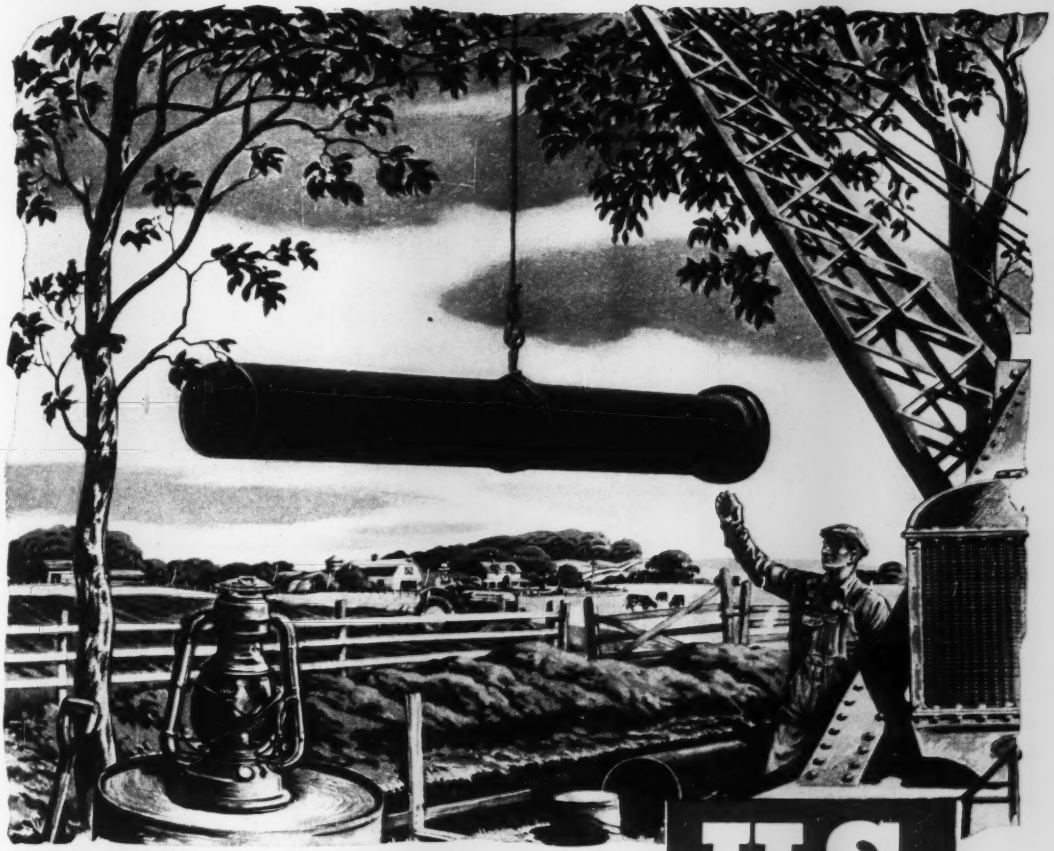
Self-Feeding Paint Roller

Featherweight construction and precision balance are among the features of a new self-feeding paint roller. New bearing surfaces provide easier rolling action, roller core has a deep fill which gives an even distribution of paint through the roller, snap-on device allows mounting and dismounting in ¼ sec.; flow control valve provides smoother flow and easier control. The Self-Feeding roller will apply paint over practically any surface. — Schaefer Self-Feeding Paint Roller Co., Inglewood, Calif.



Lightweight Chain Saw

Weight of the Model 3-25 gasoline-powered saw is 25 lb., including the blade and chain. Three blades are available—18 and 24-in. straight-blade types, and a 14-in. bow model. Hand grips are shaped and positioned to afford easy sawing in either vertical or horizontal position, right or left-handed. Throttle is controlled by trigger in the pistol-grip handle. Power is suppled by a 3-hp. single-cylinder gasoline engine.—McCulloch Motors, 6101 W. Century Blvd., Los Angeles 45, Calif.



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U.S.
cast iron
PIPE

WE SAY farewell this month to the first half of the 20th Century as well as to our 50th Anniversary year. In 1899, when United States Pipe & Foundry Co. was organized, we produced all pipe by the pit-cast process, which is still used by us mainly for making large diameters. In 1922, we shipped the first length of cast iron pipe "centrifugally cast in a metal mold," commercially produced in the United States. Today, the large majority of our pipe is produced by this progressively-improved process, which we regard as our Company's greatest contribution to efficiency and economy in pipe line service. **United States Pipe and Foundry Co., General Offices: Burlington, New Jersey, Plants and Sales Offices Throughout U. S. A.**

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Manufacturers' Publications

Pressure Gage—Interesting applications of a mechanical pressure gage are photographically represented in a new bulletin. The Dillon gage is designed to measure mechanical pressures or compressive loads even in limited space. The folder points out the principal features of the unit and illustrates a dozen ways of using it. This instrument is available in 6 models with capacities ranging from 0 to 5,000 lb.—W. C. Dillon & Co., 5410 W. Harrison St., Chicago 44, Ill.

Strong-Shell Extinguisher — Data sheets describe complete line of fire extinguishers, feature of which is the use of a silicon-bronze, monotype-construction shell with an ultimate shell strength of 1,400 psi. The data sheets describe the various extinguishers such as foam, soda-acid, and anti-freeze water types. Each sheet contains information on the operation of the particular type extinguisher as well as the uses to which each is best suited. The monotype of construction is described in detail by means of captioned illustrations.—American-LaFrance-Foamite Corp., 100 E. LaFrance, Elmira, N. Y.

Electric-Drive Pumps—Specification sheets provide information on the self-priming Rex Speed Prime pumps which are now available with two new mountings for electric motor drives. Advantages listed on the sheets include ability to take any speed of proper horsepower electric motor, compact, Rex Z-metal peeler and impeller, rotary grease seal, press-formed steel pump body and volute. Specification Sheet 49-10 MLP describes the 2-in. models; No. 49-20 MLP, the 3-in. models.—Chain Belt Co., 1633 W. Bruce St., Milwaukee 4, Wis.

Conveyor Chains; Sprockets—Diamond conveyor chains and sprockets are fully illustrated and described in a new 28-p. catalog. Bulletin No. 29 contains information on chains with pitches ranging from 1 to 4 in. with standard and large rollers. Also listed, are standard attachment links, extended pins, stainless steel, bronze, and top-plate chains and appropriate sprockets. — Diamond Chain Co., Inc., 402 Kentucky Ave., Indianapolis 7, Ind.

Expansion Joints—Bellows-type expansion joints for piping installations are described in a 20-p. combined manual and catalog. Feature of Bulletin No. 50 is the use of dimensional drawings, and tables to present the related piping data furnished. These tables cover thermal expansion of pipe and dimensions of the various Magni-Lastic joints. The booklet also tells how to select expansion joints, flexibility of design permitted by their use, and other data. Types of joints listed include low-pressure large diameter, Vaculastic stainless-steel, Turbo, anchor, offset, and swing joints. Other data in Catalog 50 describe valve bellows, flexible tube bundle casings, and exhaust bellows.—Magni-Lastic Division, Cook Electric Co., 2700 Southport Ave., Chicago 14, Ill.

History of Concrete Pipe—A span of 107 years in the use of concrete pipe is covered in a 12-p. 2-color booklet entitled, "Then and Now." Documentary material obtained from the Warshaw Collection of Business Americana was used to illustrate the booklet. These illustrations include reproductions of early booklets, invoices, price lists, tests, advertisements, and testimonial letters. The booklet points out that the first concrete pipe sewer line was installed in this country in 1842, and then goes on to describe the history of concrete pipe since, as well as its promise for the future.—Universal Concrete Pipe Co., 297 S. High St., Columbus, Ohio.

Sprayweld Hard Facing—Four-page booklet describes the Colmonoy Spraywelder, a powder metallizing gun, and the spraying of powdered Colmonoy No. 6, No. 5, and No. 4 alloys. It also explains the manner of spraying other powdered metals such as brass, copper, and zinc. It is pointed out that the Spraywelder can be used for metallizing as well as for the regular Colmonoy Process which combines both welding and metallizing. Several of the hard-facing application which have proved most adaptable to Spraywelding are also included.—Wall Colmonoy Corp., 19345 John R. St., Detroit 3, Mich.

Aluminum Fittings—Brochure describes uses of Nu-Rail aluminum fittings for pipe structures such as portable scaffolds, stair and guard rails, car ports, truck racks, etc. Profusely illustrated, Brochure AD-208 tells how pipe threading and welding is eliminated by the use of two hollow-point screws recessed in each reinforcing rib. Illustrated table of engineering specifications lists the various sizes and weights available.—Reynolds Metals Co., 2500 S. 384 St., Louisville 1, Ky.

Typical day's work for a DW10

There's no better proof of performance than on-the-job facts and figures. Here are some right off the griddle:

This job called for moving 138,000 yds. of rocky material on a terminal approach project near Hot Springs, Arkansas. Clark and Farrell Construction Co., of that city, put three "Caterpillar" Diesel DW10 wheel-type Tractors and "Caterpillar" W10 Wagons to work on it. The score:

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2. Production of all three units totaled approximately 1950 pay yds. per 9-hour day.

Just as this 100% "Caterpillar" operation paid off in high-minute production hours, an all-"Caterpillar" line-up can pay off for you. Feature for feature, the DW10 is a standout. Its heavy-duty "Caterpillar" Engine, hydraulic booster steering, air brakes and finely engineered design all add up to bigger production at lower cost.

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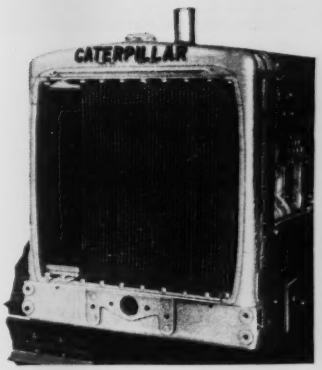

Typical of DW10 quality is the oil-cooling radiator section that keeps lubricating oil at the desired temperature. Air-cooled oil keeps pistons and rings at lower temperatures, combating carbon, thereby adding to main and connecting rod bearing life. When low temperatures are encountered, the oil is by-passed directly to all lubricating points.

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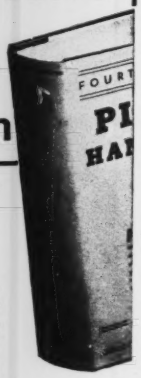

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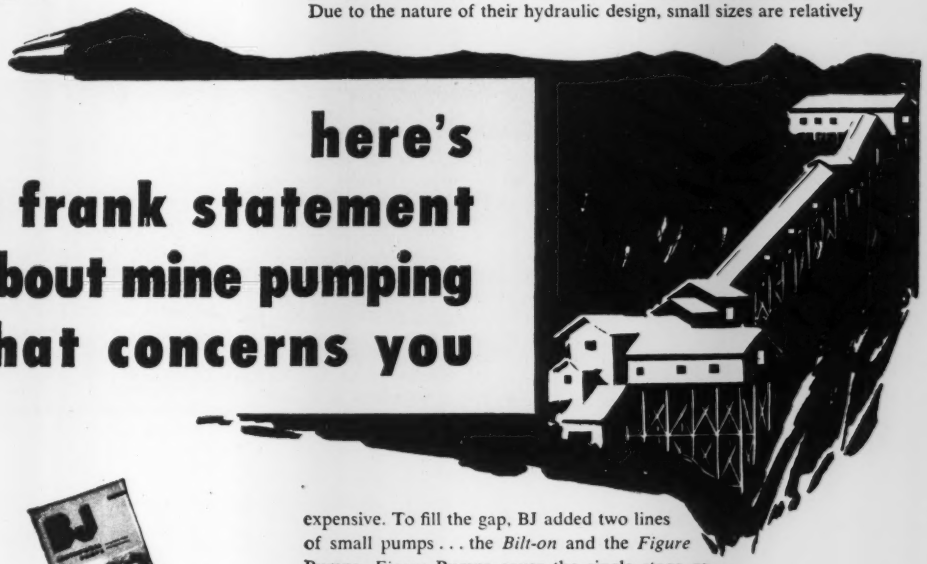
here's a frank statement about mine pumping that concerns you



The era of pump specialization in your industry has, relatively speaking, just begun. Using the right pump for the right job is easier today than it was ten—or twenty years ago.

BJ helps you make the right choice by offering a specialized line of centrifugal pumps designed for mine applications. Once considered a hydraulic impossibility, BJ perfected the unique Hydropress Pump . a high pressure, low capacity, vertical centrifugal pump for heads as high as 7000 feet. BJ pioneered the Deepwell Turbine Pump and also developed the exclusive Submersible . . . a deep well pump close-coupled to a mercury-sealed motor. The entire motor-pump unit operates *completely submerged.*

For many years, BJ single and multistage horizontal centrifugal pumps were widely used as station, booster, and unwatering pumps. Due to the nature of their hydraulic design, small sizes are relatively expensive. To fill the gap, BJ added two lines of small pumps . . . the *Bilt-on* and the *Figure* Pumps. *Figure* Pumps cover the single stage requirements. *Bilt-ons* are available in both single and two-stage construction. These smaller pumps are compact units priced in proportion to the pumping operation.

BJ Pumps can be furnished with materials to suit your mine conditions. Special metals, special impeller designs, and stout construction are part of the BJ Pump designs that best suit your applications. If you want extra technical help, consult BJ engineers. Their help is available to you at no obligation for preliminary consultation. For complete information, contact your local Byron Jackson representative or write for illustrated bulletins.

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See how BJ Pumps handle special jobs in mining operations throughout the world.

Submersible	Bilt-on
Deepwell Turbine	Vertical Sinker Type Bilt-on
Vertical Sinker Type Deepwell Turbine	Figure 1025 & 1050 Sand and Gravel
SD Multiplex	Pneumatic Sponge
SDO Multiplex	Hydropress
OL Multiplex	Hydroplex
Vertical Sinker Type Multiplex Type S	Corrosiron Acid VMT
Vertical Sinker Type S	Antimonial Lead Acid

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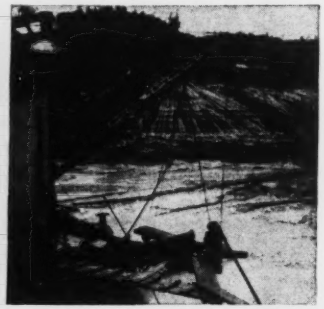
RANDOM LINES . . .

In which the construction man finds himself in familiar surroundings despite fact that it's a mining job

Rear-dump diesel trucks, familiar to all construction men, pull 20 tons of ore up out of Steep Rock Lake's bed.



Hydraulic excavation of silt overburden. Note pattern made by sluice nozzles. Dredge in foreground removes material.

Steep Rock Lake, Ont.—Steep Rock iron mine may be a mining operation, but the construction man can feel right at home here because the real digging and hauling is being done with familiar types of earthmoving machines.

And plenty of straightforward construction went into the project before ore started moving out of the pit. (How they altered the course of Seine River to bypass Steep Rock Lake, then pumped out Steep Rock to get at three ore bodies was told in ENR Dec. 14, 1944, p. 100).

Steep Rock is several miles north of the Minnesota-Canadian border, 130 miles northwest of Port Arthur. The mine headquarters is a well-ordered layout of shops, offices, service and subsistence buildings. The principal reminder of the headquarters' isolation is a neat white frame building, a Hudson's Bay Company store. (There is a railroad but no highway to the outside world).

Site of work

Shops are at the old shoreline of Steep Rock Lake, 100 ft. and more above the lake's exposed bottom and 400 ft. above the present open-pit bottom (first pit to be worked). Uphill, past these shops, giant diesel rear-dump trucks roll on an eight percent grade. Each carries 20 tons of the dense dark red ore, which is to be dropped at a crusher plant that processes the ore and feeds it to railroad cars. There are 26 of these big trucks from the United States, and eight smaller ones (15 tons).

The heavy construction equipment list doesn't stop with the trucks. At the crusher plant platform, one of our biggest bulldozers feeds the hopper. This dozer is one of six big ones here. The others help shovels on stripping and mining, and work with a motor patrol to maintain haul roads.

In the open pit, which is a deep curving gash in the lake bottom, electricity enters in, powering three churn drills and a 4-yd. shovel. (Ore is generally soft; blasting loosens it for easier shoveling.)

Two more big electric shovels, three 2½-yd. diesel shovels and six more churn drills work primarily at stripping and at cutting back rock that hems in the near-vertical ore body. The vein is about 200 ft. wide, a mile long and of great depth.

Hydraulic equipment important

Although the shovels and trucks work hard at stripping, the big job is done by hydraulic methods, because the principal overburden is a highly unstable silt. Up to 100 ft. thick in the present mining area, the silt must be kept back at 1-on-3 slopes, with 35-ft.-wide berms at every 20-ft. level. Electric pumping plants and pump barges, whose pumps originally unwatered the lake, power this operation. Water from monitor nozzles at the tops of slopes sluice the silt down to pools in which pump barges work. (Barges are equipped as suction dredges so they can dig their own working pools.

Big stripping job next year

Stripping not only plays a significant part in current operations; it will play the biggest part in work next year, when they begin to open the second orebody. That operation will involve removal, probably by hydraulic methods, of 50,000,000 cu. yd. of silt. The new layer is 200 ft. thick, to be sloped back from an orebody 3,000 ft. long and 350-400 ft. wide. The job would be bigger except for the fact that near one side of the body, Steep Rock Lake's old rock bluff rises sharply to confine the silt.

Why do they call it Steep Rock?

Which brings up the reason for Steep Rock's name—simply that the rocks are steep. Above natural water level, they rise in bluffs 100 ft. and more high, along much of the shoreline. And below, along almost all of the shoreline, they drop just as precipitously, also about a hundred feet. The continuous cliff's shape is broken only by a narrow wave-washed bench. The nearly level bottom, built up for thousands of years with the silt of annual floods, now accentuates the steepness of the rock.

In a country of easy rock slopes, glacial till and extensive swamps, Steep Rock's geological formation is an anomaly, as is the presence of the thick plunging ore veins. But the ore is there, and they are taking it out at the rate of 10,000 tons (four 50-car trains) a day—enough to load a large Great Lakes ore ship.

The end is way beyond the horizon. They'll start working ore in the second body in 1951, and then think about exposing the third. In the meantime, after they carry the first open pit as deep as practicable, they'll go on down by underground methods.—R.H.D.

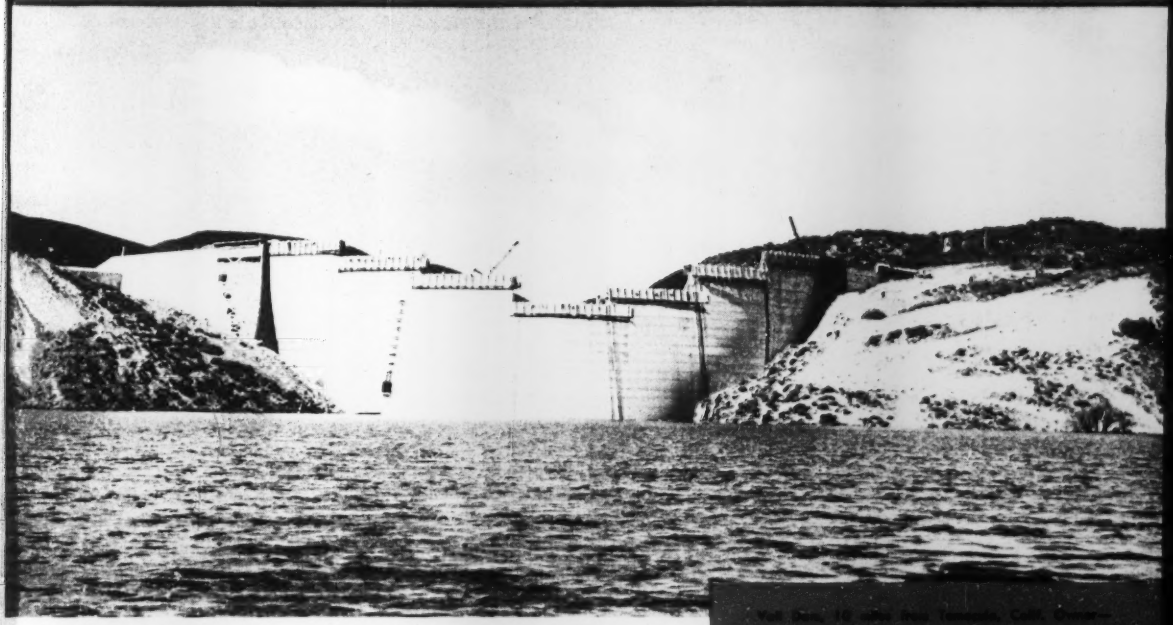
ALSO RECORDED

Charitable profanity—Construction workers on the Children's Hospital at Vancouver, B. C., have agreed to pay a penny every time they swear on the job. So far they've cussed $5.00 for charity.

Artistic license—While the dictionary spells it "Courthouse," the architect of the new county court house at St. Louis, Mo., prefers the two words "Court House" for the inscription over the entrance of the building. Architect Raymond Herbert said "We thought the two short words looked better and esthetic considerations are paramount in this matter."

Aged in the wood—A wrecking crew was dismantling a hotel in the older part of Seattle, Wash., recently when John Kuntz discovered seven dust-covered but full liquor bottles above the plaster and lath in the ceiling. A forgetful carpenter had cached them during construction in the Alaska gold rush days.

POZZOLITH CONCRETE



Yuli Dam, 16 miles east Tamworth, Calif. Owner—Privately Owned by Ranchers; Archt.—Private Plans; Engr.—Under State Supervision; Contr.—Basil Construction Co., Los Angeles, Calif. Built with Pozzolith Concrete.

POZZOLITH Solved Placing Problem, Produced Better Concrete, Cut Costs . . .

Difficult placing, due to the low water-cement ratio required, and aggravated by "packing" of the concrete in the buckets during transportation from mixer to forms, was slowing down work on this 1000-acre lake dam.

"Pozzolith solved this problem", reported the contractor "and produced stronger, more workable concrete with a reduced water-cement ratio which was well within specifications . . . Gain in speed and ease of dumping buckets plus the superior workability in the forms far outweighed the cost of Pozzolith."

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Pozzolith is the cement dispersing, water reducing admixture which makes available the optimum amount of entrained air for greater durability . . . and complies with the water-cement ratio law.

Write for full information on Pozzolith, and ACI and ASTM procedures for design, specification and production of concrete.

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Helping Texas

solve Austin's traffic problem

Constructing Texaco Asphaltic Concrete paving on the First Street "tie-in" with U. S. Route 290.

Same type of pavement being laid on the Seventh Street "tie-in" with U. S. 290.

As a result of linking First and Seventh Streets with U. S. Route 290, traffic entering Austin from the east has been expedited considerably. General contractor was McKown & Sons of Austin. Asphalt contractor was J. M. Dellinger, Inc. of Corpus Christi.

Completed Texaco Asphaltic Concrete pavement on Seventh Street. Traffic averages approximately 10,000 vehicles a day.

The Texas State Highway Department has long-range plans for eliminating traffic congestion at Austin, the state capital. The $725,000 project pictured here is part of this over-all plan. It is designed to speed the flow of traffic entering or by-passing Austin from the east.

Here is another important state highway project, in which the pavement is resilient, heavy-duty Texaco Asphaltic Concrete. Thanks to its rugged, shock-absorbing, joint-free qualities, Texaco Asphaltic Concrete is delivering long service with low upkeep on many of America's most heavily traveled streets and highways.

Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils are refined from selected crudes. They provide the road builder with products to match every need—heavy-duty paving, low-cost surfacing or maintenance. For complete information on all types of asphalt construction, write for our booklets, "Road Building with Texaco Asphalt by the Pressure Distributor Method" and "Texaco Asphalt Paving—Plant-Mixed Types."

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